COAL AGE

Volume 15 New York, April 3, 1919 Number 14

# Getting Rid of Unrest

BY FLOYD W. PARSONS

NOW we learn that the total cost of the war to the United States from April 6, 1917, to June 30, 1919, will be $30,205,000,000. This is three-fourths the size of England's war expenditure, one-fourth larger than the debt of France, twice that of Italy and fifteen times the war debt of Canada. Compared with Germany, the United States expended two-thirds as much as did the Teutons, while balanced against the cost of our Civil War the conflict just closed, although shorter, cost five times more.

From whatever angle we view the past four years there is no escaping the conviction that the world has been struck a harder blow than ever before in history. Exclusive of losses of lives and property, the cost of the war in money alone amounts to $200,000,000,000. Of all the countries that have suffered, the United States undoubtedly will be able to meet and pay off its obligations far in advance of other nations. However, while we have been running up our huge debt, which necessarily modifies the normal course of our daily lives, the mental enlightenment of the world has gone marching on, and it will require a great effort for the physical and material elements in life to catch up with the mental and spiritual side of humanity.

It makes little difference to a workman whether the head of his government is a democrat if the head of his company is an autocrat. National justice is not worth much if local injustice is permitted to flourish. The degree of contentment and happiness that surrounds an employee is determined by the character of his employer, not by some man with a new idea in the capitol at Washington. If labor unrest is attacked at the root, the plant will never grow and ripen above ground.

The way to kill anarchy and Bolshevism is to eliminate human unhappiness. We are experiencing the action of a leveling process. The so-called common people are demanding and must receive an increasing share of the good things of life. If these changes are to proceed along sound economic lines — if we are to have evolution instead of revolution — the people who have most must more speedily recognize the rights of the people who have least. There must be the recognition of the dignity of labor in terms other than money. Wages are not a universal cure-all.

Of all the important questions that bear on the lives of workmen and that influence their attitude toward existing conditions no problem is more vital than that of health. We have an enormous war debt to settle, and it can only be paid by exercising constant energy and high efficiency. Industry and health go hand in hand, while disease and incapacity travel together. We aim to eliminate poverty, and sickness is one of the chief causes of human want. In a community where ill-health prevails, the soil is fertile for the sowers of discord.

One of our great corporations long ago accepted the idea that health and safety are prime requisites in the promotion of industrial peace, and in twelve years this concern has saved 23,000 men from accident. It has also profited in compensation insurance alone to the extent of more than six million dollars. The company's employees are supplied with hospitals, wash and locker rooms, restaurants, playgrounds, good fellowship clubs, evening schools and attractive houses with splendid sanitary appointments. There are also visiting nurses, housekeeping centers for the training of the workmen's wives, gardens to supply fresh vegetables and community cellars where any oversupply of vegetables raised by the employees can be stored during the winter months.

In and near hundreds of mining camps there are foul swamps that cultivate swarms of disease-carrying mosquitoes, while only a small expenditure will rectify the trouble. Other mining towns harbor cesspools, earth closets and open manure pits, breeding millions of houseflies in close proximity to unscreened kitchens, and yet there are people who lay the epidemics of malaria and typhoid to things supernatural.

Any company official who is looking for a way to justify receiving the salary he gets need seek no further than the problem of health. Here is a work that can be made to pay dividends in the kind of self-satisfaction that comes from real service as well as in dollars earned.

# IDEAS AND SUGGESTIONS

## Keep Useful Articles for Reference

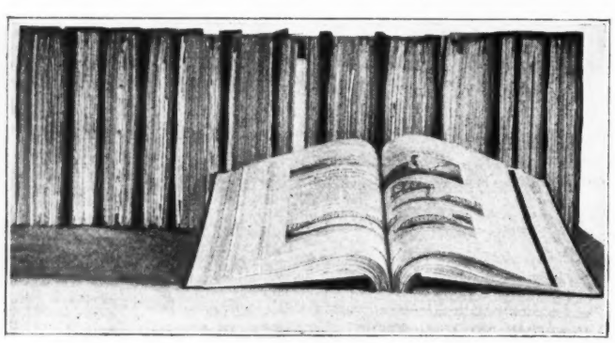
BY A. H. MYERS
Chief Inspector, Marine Department, Wellman-Seaver-Morgan Co., Akron, Ohio

It is well said that "He who reads and throws away may live to rue that very day." The adage forces itself on the attention when one is vainly searching for an article which impressed one at the time of reading it as likely to be of assistance. I purpose to describe a filing system that I have used successfully for many years.

It has been my practice to save articles appearing in many different periodicals and also bulletins of various engineering projects, if not too bulky, binding them between a pair of stiff cardboard covers, with brass binding posts, using separating or indexing sheets of paper between them. The sketches show the details of the method adopted.

The binding posts of the 4-in. size, the largest size on the market, can be purchased from an office outfitter for about 3c. each. Any bookbinding establishment should be willing to make the covers for about 80c. a pair. The paper to use as separation sheets can be purchased at the same establishment, being later cut as required. Covers of the size shown will serve for the filing of any articles which have been taken from any of the American publications now being issued.

The most convenient part of the filing system is the separating or indexing sheets which are bound in with the articles, being arranged according to the alphabetical order of the subjects thus indexed. There are subject-headings at both the right-hand side and the top of the separation sheets. The right-hand notations indicate the subject proper, while the top notations

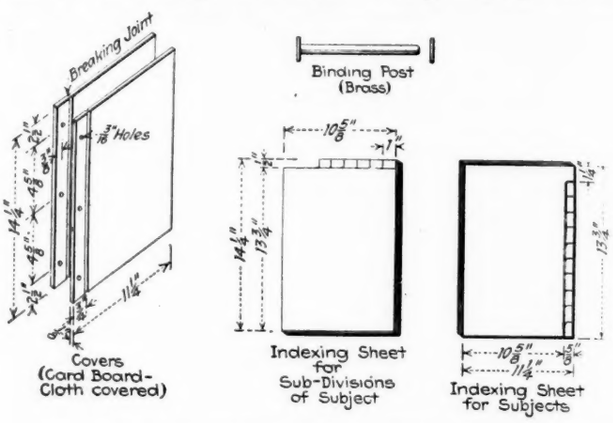


HANDY INDEX FILES OF EXCERPTED ARTICLES

indicate the subdivisions of the subject. For example, suppose the subject of boilers is to be referred to: the subdivisions that appear as top notations are construction, operation, land types, testing, marine types, etc., the subdivisions being added as the articles are procured.

When removing articles from periodicals do not cut out the article with a knife, but pull out the binding wires of the magazine with a pair of pliers. This is the better plan, for when an article is cut out of a magazine there is seldom a sufficient margin left for filing.

It can readily be seen that a system of this kind can be made comprehensive and yet simple, for all the articles saved on any given subject are in one place and not scattered all over the library, as would be the case if they were bound up with articles which the reader does not want but which appeared in the same issues with the desired articles. The photograph shows




DETAILS OF FILE FOR MAGAZINE ARTICLES

to what modest proportions my article file has attained in 10 years.

Because of the labor involved in opening up the volumes for filing, I do not usually file the articles as they are received, but lay them away until a sufficient number have accumulated to make their insertion advisable, memory being relied upon in the meanwhile or entries being made in a card index.

All persons who file data should maintain a card index in which should be listed all books, papers, etc., in the library. The card index, although not absolutely necessary for this type of article file, is nevertheless a good standby.

And now a word as to filing of catalogs, pamphlets, books, etc.; I use a system of letters to designate the heights of the books as they stand in the book case and numbers to designate any given book. Thus all books over 10-in. high are designated by the letter A, all between 9 in. and 10 in. in height by the letter B, all between 9 in. and 10 in. in height by the letter C, all under a height of 8 in. by the letter D. A standard sectional book case with a drawer for the card index is used for filing.—*Engineering News-Record.*

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## Extending a Long Straight Line

When a long tangent is being laid out on a railroad survey, or when any large number of stakes for any reason have to be set in a line, it pays the transitman to drive a special (or datum) stake in an easily visible location with an upstanding tack, so that he can test the alignment rapidly and without focusing or plunging the telescope and without the assistance of a flagman. A movement of the transit is always apt to occur and to

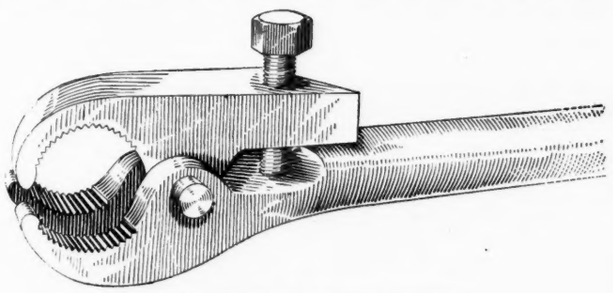
cause a swerve in the line. This is especially true if the instrument is set on the ground, which should rarely be done, for it is almost impossible to guarantee that it will remain just where it stood when first placed unless pedestal stakes are firmly driven and the instrument erected on these.

It quite frequently happens that the plummet, after the transit has stood awhile, fails to plumb to the instrument point. In this event the tack on the datum stake will not register the exact line, but it will prevent the error from being as great as it would have been if the tack had not been used; especially if the datum stake is set at a point quite remote from the transit. Most transitmen when running a tangent line for locating houses, lots, sewers or grades waste more time bringing the instrument back to line and position than they would waste if they, from the first, provided the instrument with a pedestal of undoubted permanence and located a suitable datum stake for readily testing the accuracy of their work.

## Sure Grip Pipe or Stud Wrench

By Charles H. Willey
Concord, N. H.

A sure grip wrench may be made in a size to suit one's needs in a form similar to that shown. It can be used for gripping any round stock, pipe, studs and similar material. The device was invented to answer



WRENCH FOR ROUND STOCK

the need of a positive grip wrench for removing stubborn pipe and studs. The pin is slipped out when putting the wrench on or taking it off the work. By screwing down the screw the jaws of the wrench exert an enormous grip on the pipe or stud.

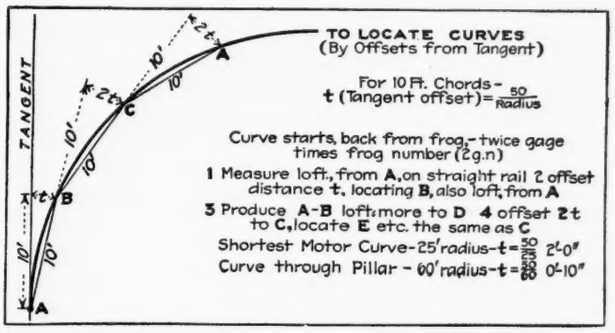
## To Locate a Curve with a Tape

By Harry Goodnow
Du Quoin, Ill.

The other day I was drawn into a discussion between the "Big Boss" and the "Little Boss." A switch had been laid for a turn from a main entry into a panel entry. The Big Boss said there was not room for starting a turn over which an 8-ton motor could pass successfully, and that the switch would have to be torn up and relaid, starting further back in the entry. The Little Boss was sure the curve would go in all right.

We finally agreed, after measuring another short curve in the mine, that a 25-ft. radius curve was the shortest over which the motor could operate. As the engineer I was asked to stake out such a curve and see whether or not it would lie within the confines of the entry in question. It would—with few inches to spare—but anyone except a first-class tracklayer would have failed in his task without stakes, as the curve had to be absolutely uniform.

It occurred to me then that such questions often come up and that there is seldom an engineer on hand to settle them. Accordingly, the accompanying data




CURVE DATA SHEET

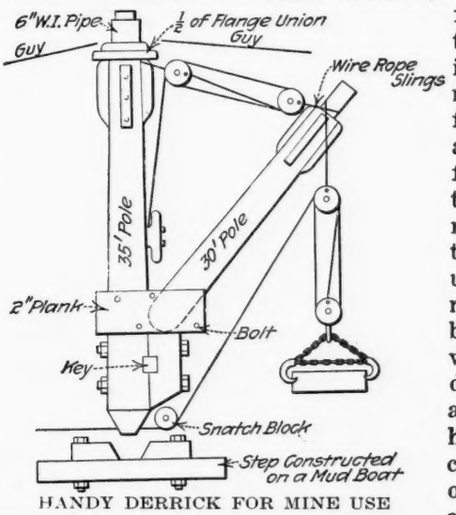
were drawn up on tracing cloth and blueprints made for several of the bosses.

It is my belief that the blueprint is self-explanatory. However, I would advise a little teamwork between the boss and the local engineer so that no mistakes will be made through lack of understanding on the part of a boss not used to such work.

## Improvised Derrick Without Usual Irons

By Samuel P. Baird
Columbus, Ohio

The accompanying figure illustrates an improvised boom derrick, built without the derrick irons which would ordinarily be thought necessary. The principal features are the step-bearing for the mast, the step for the boom and the means for allowing the mast to rotate at the top. The rope used was 1-in. manila, the boom hoist was a pair of double blocks, and the main hoist was a combination of a double and a triple block. The main power was a steadily moving team. The loads lifted were stone weighing about a ton, and they were raised high enough for a truck to back under. A friction drag was provided on the main fall line, so that the load could be lowered gently. With this provision the team could be permitted to return as soon as the load was raised to the desired height. Thus it was ready to be hitched onto the rope for the raising of the next stone as soon as the first was lowered into place.—*Engineering News-Record.*




HANDY DERRICK FOR MINE USE

# The Yellowhead Coal District

By S. Mac Vicar
Coalspur, Alberta

SYNOPSIS — *Two coal beds on a steep pitch are worked simultaneously by means of a balanced plane. Each balanceway produces about 75,000 tons of coal and requires nothing but gravity for its operation. The coal produced finds a ready market and the area worked will eventually be one of the most important in western Canada.*

THE Yellowhead coal district is situated in the foothills of the Rocky Mountains, about 180 miles by rail west of Edmonton, Alberta. It is served by a branch of the Grand Trunk Pacific Ry., which leaves the main line at Bickerdike, Alberta, running southwesterly 37 miles to Coalspur Junction, then southeasterly for 20 miles along the same general direction as the strike of the coal beds to the mines of the North American Collieries, at Lovett. Present developments indicate three series of outcrops running through the district, each series containing six large and valuable beds of coal as well as many smaller ones of lesser value.

The beds worked by the operating companies are on the southwesterly slope of an anticlinal fold, the crest of the fold appearing about 1½ miles to the northeast. The measures belong to the Upper Cretaceous period. A section at Coalspur shows the formation to be about 3000 ft. in thickness, consisting of a succession of sandstones, shales and coal beds, with a conglomerate bed near the bottom. The Yellowhead coal beds are in the upper part of the section and the Lovett beds in the lower.

The strike of the coal seams is approximately northwest and southeast, and the dip of the Yellowhead beds at Coalspur is 52 deg. to the southwest. The ridges containing the coal measures are low, except at Coalspur, where they are high and well defined, and are cut at right angles by the Embarass River. The railroad is afforded a natural passageway through by following this stream.

The coal is a hard bituminous of good quality suitable for steam-raising or household use. If mined with care, under proper methods, it will not contain over 10 or 12 per cent. of ash. In Table I are representative figures taken from "Analyses of Canadian Fuels."

The mine-run shipments from this district, in July, 1918, to the Grand Trunk Pacific Ry., showed the analysis given in Table II.

The coal in all cases is non-coking, burning to a gray ash. The Government analyses are a fair representation of what the mined product would be, if the coal was kept clean and free from dirt; also they show that the quality of the fuel over the whole district is very regular. The coal is shipped in the following sizes: Slack, 0 to 1 in.; stove, 1 to 4 in.; lump, 4 in. and up; also mine-run. The slack is used by the cement plants, the Grand Trunk Pacific Ry. at its division points, by power plants adapted to burning slack, and by factories at Prince Rupert.

The mine-run is used for stationary boilers, and in the winter season by locomotives. The stove and lump find a ready sale in Saskatchewan and Manitoba, where this fuel is able to hold the market against any coal shipped into these provinces. The coal sells best in lump, and the system of mining adopted must be one that will preserve the lump and deliver it clean and free from impurities.

A section of the beds being developed at the Yellowhead Coal Co.'s new mine at Coalspur is shown in Fig. 1. Fig. 2 is a plan of the method adopted to work these beds. A tunnel driven across the measures, after crossing several seams of varying thicknesses, cuts No. 2 bed 500 ft. from the portal. An entry is driven in this bed with a counter 35 ft. above, and an air-course in No. 1 seam parallel to the counters

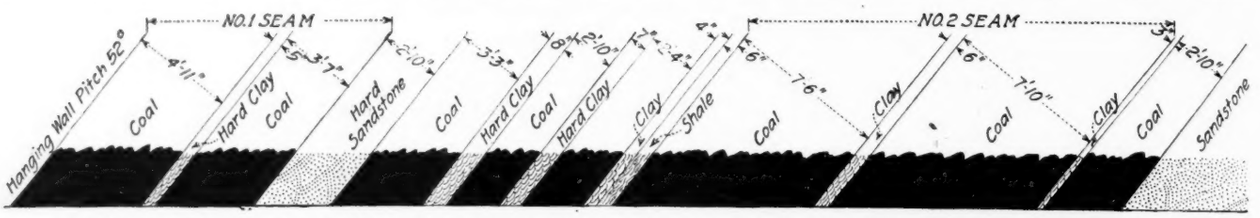



FIG. 1. SECTION OF BEDS BEING DEVELOPED AT COALSPUR MINE OF YELLOWHEAD COAL CO.

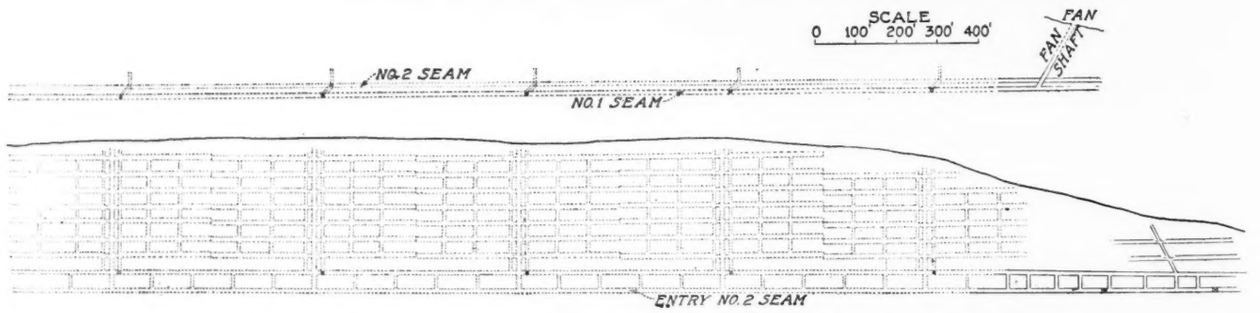



FIG. 2. PLAN OF METHOD ADOPTED TO WORK YELLOWHEAD COAL BEDS

in No. 2 seam. The coal from this air-course is dumped into chutes driven across the measures from the entry in No. 2 seam.

When 1100 ft. in, the entry is well under the hill, and one main headway is driven on the full pitch of the seam along the course of the center parting; 12

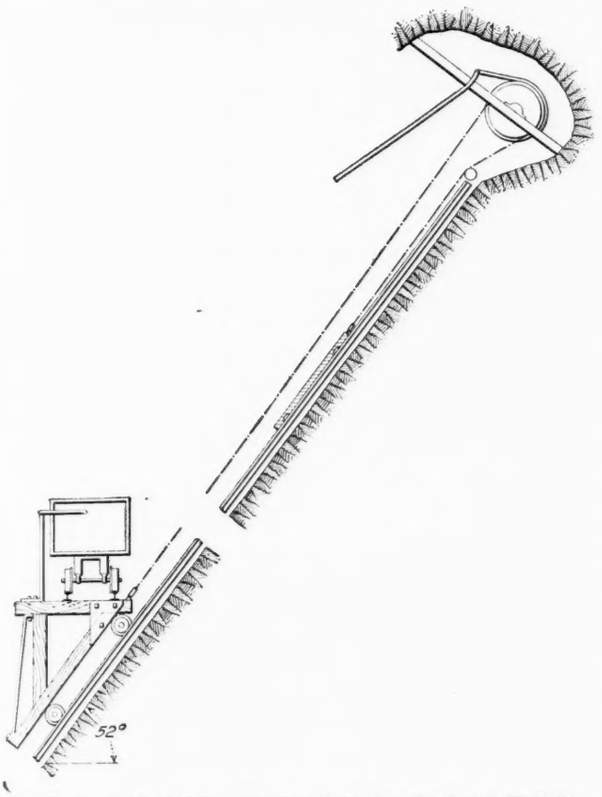



FIG. 3. BALANCED CONVEYING SYSTEM BETWEEN ROOMS AND GANGWAY

ft. on each side of this headway two smaller air-courses are driven in the under part of the seam. As the headway and raises advance roomnecks connecting the raises with the headway are driven at 40-ft. centers.

As soon as one roomneck on each side is completed, the clay minings from the headway, raises and roomnecks above are caught by properly arranged wing boards and stowed in the completed roomnecks. The wing boards are shifted as the raises and headway advance. After the completion of the headway all the refuse from the roomnecks is cleaned out, the headway prepared for balanced haulage, and the raises used for air-courses and traveling ways.

In preparing the headway for the balanced system of conveying the cars between the rooms and the gangway below, the headway is laid with two sets of rails; one of a wide gage to accommodate a triangular shaped cage (Fig. 3 in side view); the other of narrow gage set inside the cage track for a long narrow balance car. A pulley provided with a brake is placed just above the top room. A rope passes around the pulley, one end being attached to the cage, the other to the back balance.

The back balance consist of a weight midway between that of the cage when carrying an empty car and when carrying a loaded car. The top of the cage is a horizontal platform with track placed at right angles to the balance track, and provided with catches. At each roomneck the track is extended close up to the rails fixed on the cage. An indicator is provided for the attendant at the brake, and by an arranged code of signals the cage can be stopped at whatever room is required to be served. At the bottom of the balanced haulage the gangway is widened out to form a pit for the reception of the cage, and a parting is formed for empty and loaded cars. This system enables the coal to be loaded directly at the working face into the mine cars, and the miners may be paid by weight. It insures a minimum of breakage. The timber can be taken up to the working places on the cage, faulty mining can be detected immediately, and machines can be used for cutting the coal.

TABLE I. APPROXIMATE ANALYSIS OF YELLOWHEAD DISTRICT COAL

| | Fixed Carbon | Volatile | Ash | Moisture | B.t.u. |
|---|---|---|---|---|---|
| Yellowhead | 49.9 | 37.8 | 8.3 | 4.0 | 11,790 |
| Oliphant Munson | 51.0 | 37.1 | 8.7 | 3.2 | |
| Lovett | 50.3 | 34.9 | 9.3 | 5.5 | 11,650 |

Four rooms at the top of the balance are developed on each side. These with crosscuts connecting them to No. 1 seam make in all eight rooms on each side of the balance. These will give an output, when machine mined, of 250 to 300 tons per day. After the rooms are driven 250 ft., the pillars are taken out, commencing at the upper one. While the first formed pillars are being drawn, others are being formed by driving rooms further down on the balanceway. A general idea of the method of working may be gained from Fig. 4. The details of the method of drawing the pillars can be gathered from Fig. 5.

TABLE II. ANALYSIS OF MINE-RUN COAL FROM YELLOWHEAD DISTRICT

| | Fixed Carbon | Volatile | Ash | Moisture | Sulphur | B.t.u. |
|---|---|---|---|---|---|---|
| Yellowhead | 46.40 | 34.42 | 14.62 | 4.56 | 0.28 | 10,280 |
| Oliphant Munson | 45.20 | 36.06 | 14.14 | 4.60 | 0.29 | 10,700 |
| Lovett | 42.34 | 30.80 | 21.66 | 5.20 | 0.39 | 9,007 |

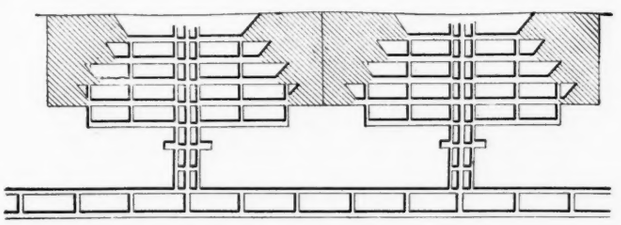


Fig.

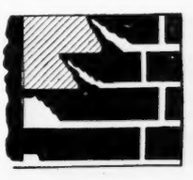


Fig. 5

FIG. 4. METHOD OF WORKING AND (FIG. 5) METHOD OF DRAWING PILLARS

The bottom corner of the pillar is taken out, and a face formed across the pillar from room to room, at an angle sufficient to allow the coal to roll to the track and be loaded out. If the pillar is already drawn above,

then, when near the gob a shot is put in, breaking the coal and causing the gob to run into the face of the pillar, which is being drawn. When this occurs the miners have a platform of loose gob to work on. Pillar extraction goes on simultaneously in both beds, and on both sides of the balanceway. With careful mining each balanceway will yield over 75,000 tons of coal.

The coal is hard, with no pronounced cleavages. It stands considerable handling without loss and weathers well in the open. It is a long-flamed, free-burning fuel giving off intense heat. The area worked is one of the largest and most valuable in Alberta, and must eventually supply a large portion of the western provinces with fuel for industrial and domestic use.

# A One-Year Retrospect of the Coal Industry of Utah

By A. C. Watts
Salt Lake City, Utah

SYNOPSIS — *Many circumstances both within and without the state tended to influence the coal industry of Utah during the past year. On the other hand, some factors that it was anticipated would have pronounced effects have failed to make their influence felt. A steady growth in civic pride throughout the mining communities is noticeable.*

WHILE it is usually considered wise to look forward rather than backward, it is sometimes inspiring to review past events in order the more readily to appreciate what is yet to be accomplished. The following paragraphs deal with conditions that have to a more or less decided extent directly or indirectly influenced coal production in the State of Utah during the past year. No serious attempt has been made to join the subjects treated into anything like homogeneity. They are rather notes more or less at random, covering certain conditions that influenced production and secial conditions in the coal fields.

During the latter part of March, 1918, Mr. Garfield's zoning order was issued and caused considerable speculation regarding its application to Utah and Wyoming mines. Some of the Utah operators interpreted it to mean the elimination of Wyoming coal from markets to the west and northwest of that state. This would naturally result in increased demands for Utah coal. This idea was speedily dispelled by advices from Washington to the effect that the order contemplated no change in the movement of Utah coal and no change in the movement of Washington, Montana and Wyoming coal except to allow these fuels to move further east, thereby increasing their market territory.

Although there were many Austrians and some Germans and Bulgarians working in and around the coal mines of Utah, but little trouble was experienced from them. A few became too outspoken in their allegiance to the Central Powers and in their criticism of this country and were deported, while one or two were interned in the internment camp at Fort Douglas adjoining Salt Lake City. Despite an apparent lack of evil intent among the aliens, the operators took no chances and had their properties well lighted and guarded, and exercised as much care as possible in the employment of men.

One of the main concerns of the operators was the prevention of illegal accumulations of explosives by evilly disposed aliens, if there were such among us. The Government, through the Bureau of Mines, exercised supervision over the sale and distribution of explosives, but the powder regulations of most of the operators have always been strict. To be further on the safe side, the officials of the mines doubled their inspection and in some instances the use of powder in the mines was subject to the inspection of four or five different officials and under-officials.

On Jan. 29, 1918, the Secretary of the Interior ordered withdrawn from entry 40,000 to 50,000 acres of land adjacent to the Price River in Carbon County pending investigation of the feasibility of an irrigation project having as its source of supply one of the main tributaries of the Price River, and embracing a reservoir site in Pleasant Valley, in which is situated the town of Scofield. The significance of this order lies in the fact that if this project is held feasible and adopted, it will mean the building of a new branch line of the Denver & Rio Grande R.R. to the coal mines of the Pleasant Valley district. The building of the reservoir may mean the impossibility of working coal deposits adjoining it. The valley is traversed by great faults which might prove to be efficient water channels. The lands withdrawn from entry embraced many acres of oil-bearing shale.

The success of Liberty Loan, War Savings Stamp and various war work drives in the coal camps has been wonderful. Every one went over the top and the competition between various camps as to which would get over first was keen.

The first Liberty Loan in 1917 was much more difficult to handle. At that time there was not the keen realization of the importance of the loans that was exhibited last year—nor the sense of responsibility. Furthermore there seemed at first to be a belief that the money subscribed was given to the Government, and thereby lost. After a coupon or two had been cashed, the feeling changed and each succeeding loan was easier to handle. A man felt disgraced if he could not take at least one bond.

It was surprising to note some of the subscriptions. One boiler fireman took $1000 of the Fourth Loan. A car dropper who before last year had never earned over $3.15 per day, was found to owr $1700 in bonds and savings stamps. When asked how he did it, he gal-

lantly attributed it all to his wife and said if he had married ten years ago instead of six, he would not now have to work. An old lady who had three sons in the service, one of whom I am proud to say worked for me, came to the office and bought $500 of the Fourth Loan; and when a few hours later she received $90 as the Government allotment from her soldier boys' wages, she went directly back to the office, aded $10 to the $90 and bought a bond for her sons. There were many incidents of this kind, for patriotism runs high in the coal camps.

For war work funds many mines made a monthly deduction of from 25c. to $1 from each man's wages as the contribution of the miners.

The Fourth Loan proved a glorious success and Carbon County was the banner county of the state—its subscriptions averaging $40 for each man, woman and child in the county. For one company, a grand total of $567,419.93 has been subscribed to Liberty Loans, War Savings Stamps, and given for various war funds.

Utah contains many thousands of acres of oil-bearing shales, which Government experts believe capable of furnishing large quantities of oil. The great demand for this fuel for war work has brought attention to the fact that many petroleum fields are barely holding their own in production, and as the demand is increasing all the time some new sources of supply must be discovered. When attention was attracted to oil shales, many people had visions of great wealth and much excitement prevailed. But as yet no real progress has been made toward utilizing the oil shales, and we are still burning coal in our locomotives and furnaces.

### Influenza Proved Serious in Utah

The epidemic of influenza which has and is sweeping the country has proved a serious drawback to the coal-mining industry in Utah. Unfortunately, people have not realized the dangerous character of this disease—it has not the terrifying attributes of smallpox, cholera or bubonic plague; there were no flaring yellow or red quarantine signs, nor dreaded pesthouses, and its spread throughout the country has been much more insidious. A community would develop a few cases and then apparently the disease would disappear, but only to break out with greatly aggravated virulence.

Many of the coal camps instituted strict quarantines as soon as the disease appeared and have observed this measure since early in October. It is to be noted that when strict quarantine regulations have been in force, the disease was not very prevalent. It is interesting, however, to recall that in April of last year there was quite an epidemic of colds in some camps, as also in some metal mining towns in the state. The affection was then called LaGrippe, and many miners and coke pullers were off work with it, the coal and coke output being materially reduced thereby. The output at some of the mines has been seriously reduced because of the "flu," and surface improvement operations have in some cases had to be temporarily abandoned.

Some nationalities have strong ideals about preventive measures. For instance, the Greeks eat a great deal of garlic. In one camp there were no cases among these garlic-eating Greeks, but there were among the Italians, who are also very fond of the herb, vegetable or weed, whichever it may be. In other camps there cases of the "flu" among the Greeks—possibly their supply of garlic whichever it may be. In other camps there were cases of the "flu" among the Greeks—possibly their supply of garlic ran out. While the epidemic interfered with output, it is impossible to give accurate data concerning its exact effect on coal production.

Ordinarily, improvements made in and around coal mines can only be placed in one class—that of essentials or necessities. The custom of many well organized companies is to make yearly budgets which embrace all expenditures for improvements that can be foreseen for the year. These are then placed in two main classes—those that are imperative and those that are desirable, but that can be, if necessary, deferred for six months, or a year. Generally the first class of improvements includes equipment to maintain or increase output, but because of war conditions it has been necessary to include in it housing and other personal facilities for employees. This in some part is due to the increase in the larger number of older men employed who have families. Thus, in Utah, the operators have built a considerable number of dwellings for employees and have added more conveniences than heretofore. Perhaps it is not strictly just to attribute all this to war conditions, for the general policy all over the United States for several years past has been to make living conditions in coal camps more pleasant and comfortable.

During the year three large amusement halls were opened with great éclat, and the enlargement of another started. These halls have meant much to the inhabitants of the camps and have proved popular. All were commenced in 1917, but finished in 1918, as were also three large miners' bathhouses and some smaller ones. It has also become necessary to increase the garage facilities in many of the camps to take care of the ever increasing number of automobiles owned by miners. The custom has been followed in many instances of building central garages having 7 to 12 stalls. These are built of fireproof materials, possess low fire risks and improve the general appearances of the towns.

It is now becoming inappropriate to speak of some mining communities as "camps," for at least two are incorporated towns boasting of mayors, town councils, boards of health, town constables and sprinkling wagons. In one, at least, the citizens have a cement sidewalk and have planted shade trees along the streets. Civic pride is being developed, the manifestation of which is apparent in the much more tidy appearance of the various municipalities.

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THE CARBON DIOXIDE RECORDER used in testing the working of steam boilers should be made to pay dividends, says *Power*. This indicator does not of itself improve the efficiency of the plant, but merely shows what is being accomplished. Every engineer should be acquainted with the operation of the instrument so that he may use the information it gives to aid in the economical combustion of coal. Low $CO_2$ readings may be caused by excess of air or improper mixture of air and gases. Excess air may be caused by leaks in the boiler setting, carrying too thin a fire bed or too strong a draft. Low $CO_2$ is also caused by insufficient air or too little draft; the fuel bed may be too thick or the air spaces in the grate may be clogged with clinker or slag. Leaks about the furnace or boiler and dirty tubes or flues retard the draft. However, one of the most common causes of insufficient draft is the clogging of the grates with clinker or melted ash.

# Rolls for the Preparation of Coking Coals

SYNOPSIS—*Coal is frequently crushed at coking plants in order to secure uniform and homogeneous coke. For this purpose two general types of machines are available—the hammer mill and the roll crusher. The latter appears to possess certain advantages over the former.*

THE increased attention being given in this country to the preparation of coal for coking will insure considerable interest in any details that may be available regarding the many questions raised in connection with this important problem of producing a uniform coke for metallurgical use. This article will be a description of rolls with smooth and corrugated surfaces used for sizing bituminous coal preliminary to coking.

Coking coals are crushed (1) so as to detach adhering impurities from the real coal. Preliminary to separating the worthless matter from the good by a dry or wet method of cleaning; (2) so as to reduce the non-coking impurities intermixed with the coal small enough that the resulting coke will be uniform in structure and not contain detrimental cracks or parting seams; (3) to prepare coking coals of different physical and chemical characteristics, preliminary to making a uniform mixture for charging.

The insertion in this article of data relating to hammer mills is only for the purpose of comparison, in order to learn the relative value of rolls, and show that each type of coal-reduction equipment has a field in which it excels.

Hammer mills will pulverize run-of-mine coal without preliminary sizing. In the use of rolls it is essential that the coal be sized small enough so that the largest pieces will catch between the rolls.

Rolls and hammer mills are the two distinct types of machines extensively used for preparing coal for coking. Since it is possible to purchase either type of machine in almost any size and with the assurance that the design and construction are adequate for the work intended, the choice of type can be made strictly on the basis of suitability and economy.

There are certain advantages and disadvantages that are inherent in each type of machine, and these are generally well recognized. Of greater importance, and less generally appreciated, are the characteristics of each machine for a particular size and service.

Hammer mills pound and force the coal through perforations or longitudinally placed bars, the size and spacing determining the size of the largest pieces of the coal. Rolls crack the coal by compression and no interfering impediment obstructs its free passage from the machine after passing between the rolls, the distance apart the rolls are set determining the size of the largest pieces of the coal. The difference in principle of reduction evidently results in a considerable saving of power, in favor of rolls, that is worthy of consideration in making a choice of types on the basis of economy of operation and repair. Cracking the coal by compression in place of pounding and forcing it through a certain size of hole, results in a more uniform and better product for the effective operation of the succeeding cleaning method. The pounding and forcing action creates an excessive amount of fines and dust from both the impurities and the coal, which increases the difficulties involved in any cleaning method on a commercial scale or of separating the worthless matter from the valuable coal. It also adds to the difficulties of clarifying the wash water of refuse.

Since rolls act on the principle of cracking by compression and since, when they are set to crack the coal to any particular size, the particles smaller than that size can tumble through without being further reduced, rolls yield a smaller percentage of fines and dust and a more uniform finished product for the final cleaning or charging than any other type of coal-reduction machine. Rolls will crack wet coal as satisfactorily as when the coal is dry without increase in the absorption of power and without choking. Approximately 25 per cent. less power is required with rolls than with any other type of reduction machine to reduce like coal to

TABLE I. RECORD OF TESTS MADE WITH SMOOTH AND CORRUGATED ROLLS AT COMMERCIAL COAL-PREPARING PLANTS

| Line | Size of Rolls: Diameter, In. | Size of Rolls: Length, In. | Surface of Rolls | Rolls Set Apart, In. | Peripheral Speed, Ft. per Minute: Fast Roll, Ft. | Peripheral Speed, Ft. per Minute: Slow Roll, Ft. | Kind of Coal | Approximate Size of Coal Fed to Rolls | Moisture, per Cent. | Feed to Rolls Net Tons per Hour. | Fineness of Cracked Coal: Through ¼-In. Round Holes, per Cent. | Fineness of Cracked Coal: Through ½-In. Round Holes, per Cent. | Fineness of Cracked Coal: Through 1-In. Round Holes, per Cent. | Actual Horsepower to Crack Coal: Hp.-hr. per Ton of Coal | Actual Horsepower to Crack Coal: Net Average, Hp. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30 | 60 | Smooth | ¼ | 1500 | 1050 | Soft and friable | 1½ in. cubes to dust | 2.10 | 100 | 75.10 | 97.50 | 99.20 | 0.49 | 49.0 |
| 2 | 30 | 60 | Smooth | ⅜ | 1500 | 1050 | Hard and tough | 1½ in. cubes to dust | 1.60 | 100 | 70.00 | 95.50 | 98.25 | 0.52 | 52.0 |
| 3 | 30 | 60 | Smooth | ½ | 1500 | 1050 | Soft and friable | 1½ in. cubes to dust | 1.85 | 80 | 86.00 | 98.25 | 100.00 | 0.63 | 51.0 |
| 4 | 30 | 60 | Smooth | ½ | 1500 | 1050 | Hard and tough | 1½ in. cubes to dust | 1.55 | 80 | 82.50 | 97.00 | 99.00 | 0.72 | 58.0 |
| 5 | 30 | 60 | Corrugated | ¼ | 1500 | 1050 | Hard and tough | 1½ in. cubes to dust | 1.50 | 110 | 54.20 | 78.00 | 96.00 | 0.47 | 51.7 |
| 6 | 30 | 60 | One smooth, one corrugated | ¼ | 1500 | 1050 | Hard and tough | 1½ in. cubes to dust | 1.60 | 105 | 65.60 | 87.10 | 97.50 | 0.50 | 53.0 |
| 7 | 42 | 60 | Smooth | ¼ | 1500 | 1050 | Soft and friable | 1½ in. cubes to dust | 2.00 | 110 | 77.40 | 98.75 | 99.40 | 0.51 | 56.0 |
| 8 | 42 | 60 | Smooth | ⅜ | 1500 | 1050 | Hard and tough | 1½ in. cubes to dust | 1.65 | 110 | 74.20 | 97.50 | 99.10 | 0.54 | 60.0 |
| 9 | 42 | 60 | Smooth | ½ | 1500 | 1050 | Soft and friable | 1½ in. cubes to dust | 1.95 | 90 | 87.25 | 98.50 | 100.00 | 0.65 | 59.6 |
| 10 | 42 | 60 | Smooth | ½ | 1500 | 1050 | Hard and tough | 1½ in. cubes to dust | 1.75 | 90 | 85.00 | 97.00 | 99.70 | 0.75 | 68.5 |
| 11 | 42 | 60 | Corrugated | ¼ | 1500 | 1050 | Hard and tough | 1½ in. cubes to dust | 1.60 | 121 | 56.80 | 80.20 | 97.50 | 0.47 | 57.4 |
| 12 | 42 | 60 | One smooth, one corrugated | ⅜ | 1500 | 1050 | Hard and tough | 1½ in. cubes to dust | 1.75 | 116 | 67.15 | 88.40 | 98.30 | 0.52 | 60.3 |

NOTES—Coal designated as soft and friable is Pocahontas coal. Coal designated as hard and tough is Pittsburgh gas coal. In each case the run-of-mine coal had been first sized by a Bradford coal breaker with 1¼-in. square perforations. The tonnage fed per hour is the maximum, with the designated diameter, length, surface, speed and distance rolls set apart. Speed of rolls great as permissible, without choking by the refusal of rolls to nip the largest pieces of coal. Rolls designated as corrugated have three corrugations to one inch, $\frac{1}{16}$ in. deep.

TABLE II. RECORD OF TESTS MADE WITH HAMMER MILLS, AT COMMERCIAL COAL-PREPARING PLANTS

| Line | Kind of Coal Mill | Perforations of Hammer Mill, Screen | Kind of Coal | Approximate Size of Coal Fed to Hammer Mill | Moisture, per Cent. | Feed per Hour to Hammer Mill, Net Tons | Fineness of Crushed Coal — Through ⅛-In. Round Holes, Per Cent. | Through ¼-In. Round Holes Per Cent. | Through ⅜-In. Round Holes, Per Cent. | Actual Power Necessary to Crush Coal Hp.-Hr. Per Ton | Net Hp. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Hammer mill | ⅜-in. round holes | Soft and friable | Run-of-mine | 1.55 | 150 | 91.30 | 97.35 | 99.90 | 0.814 | 122 |
| 2 | Hammer mill | ¼-in. round holes | Soft and friable | Run-of-mine | 1.50 | 150 | 97.10 | 99.30 | 100.00 | 1.252 | 188 |
| 3 | Hammer mill | ¼x1⅜-in. holes | Soft and friable | Run-of-mine | 1.70 | 150 | 87.10 | 96.60 | 98.50 | 0.733 | 110 |
| 4 | Hammer mill | ⅜-in. round holes | Hard and tough | Run-of-mine | 1.20 | 150 | 86.20 | 95.40 | 99.70 | 0.886 | 133 |
| 5 | Hammer mill | ¼-in. round holes | Hard and tough | Run-of-mine | 1.25 | 150 | 92.30 | 97.00 | 100.00 | 1.366 | 205 |
| 6 | Hammer mill | 1¼x1⅜ in. holes | Hard and tough | Run-of-mine | 1.10 | 150 | 82.00 | 94.20 | 98.10 | 0.805 | 121 |
| 7 | Hammer mill | ⅜-in. round holes | Soft and friable | 1¼-in. cubes to dust | 1.80 | 80 | 92.10 | 97.60 | 99.75 | 0.754 | 60.3 |
| 8 | Hammer mill | ⅜-in. round holes | Hard and tough | 1¼-in. cubes to dust... | 1.95 | 80 | 85.80 | 95.40 | 99.55 | 0.825 | 66 |
| 9 | Hammer mill | ⅜-in. round holes | 60 per cent. soft 40 per cent. hard | 1¼-in. cubes to dust... | 1.70 | 80 | 88.60 | 96.35 | 99.70 | 0.778 | 62.6 |

NOTE—The tests were made immediately after the mills were installed. Coal designated as soft and friable is Pocahontas coal. Coal designated as hard and tough is Pittsburgh gas coal.

the same degree of fineness. The upkeep and depreciation per ton of coal handled is barely noticeable owing to the few parts subjected to wear and tear. In case of choking up rolls can be relieved promptly without derangement of the covering. They are practically dustless and operate at a comparatively slow speed, have a large capacity per square foot of working surface and a minimum of skill and attendance is required. Instant and rigid adjustments may be secured in the space between rolls; automatic adjustments for instantly relieving the rolls in case tough foreign matter is mixed with the feed may be employed as well as a magnetic attachment for the removal from the feed of nails, nuts, mining-machine cutters and the like. A positive automatic feeding device to prevent overloading may be employed, while regrinding of smooth rolls when they have become unevenly worn can be accomplished without removing the rolls from their supporting frame. Rolls are comparatively reasonable in price and cost of installation.

The relation between the maximum size of coal fed to rolls, the speed at which they revolve, the diameter and the space between them determine the angle of nip. Rolls cannot be fed with run-of-mine coal as can hammer mills, but must be supplied with a sized product, the largest pieces being of a size suitable to the angle of nip provided. With a spacing of $\frac{1}{16}$ in. in the clear, and a peripheral speed of about 1500 ft. per minute, the relation between the diameter of rolls and maximum size of individual pieces of coal are as follows:

Diameter of rolls 24 in. for ¾ in. cubical form of lump and less
Diameter of rolls 30 in. for 1 in. cubical form of lump and less
Diameter of rolls 36 in. for 1¼ in. cubical form of lump and less
Diameter of rolls 42 in. for 2¼ in. cubical form of lump and less
Diameter of rolls 48 in. for 3 in. cubical form of lump and less

When coking coal is to be charged without removing a portion of the worthless matter by cleaning, and fineness is desired only for mixing coals of different characteristics, or to reduce the intermixed impurities to a size such that the resulting coke will be uniform in structure, some coke-oven operators are of the opinion (and this is substantiated by record of comparative tests on file) that rolls will not produce as large a percentage of fine coal as hammer mills. The record of tests which has induced this opinion is not questioned, but other conditions, perhaps unnoted, occasioned such misinterpretations.

For example: Table I, line 9, shows that rolls set $\frac{1}{16}$ in. apart, handling soft and friable coal, produce a product of which 87.25 per cent. passes through a hand testing sieve provided with ⅛-in. round holes. Table II, line 2, shows that a hammer mill provided with a screen having ¼-in. round perforations, handling soft and friable coal, produces a product of which 97.10 per cent. passes through a like sieve. Upon examination of the products remaining on the testing sieves, it was ascertained that the roll product (12.75 per cent.) consisted of about 30 per cent. coal and 70 per cent. impurities, thin and rectangular in shape, averaging $\frac{1}{16}$ in. thick, $\frac{3}{8}$ in. wide and equally as long; or in volume 0.0087 cu.in. The hammer mill product (2.90 per cent.) consisted of about 65 per cent. coal and 35 per cent. impurities, cubical in shape, averaging $\frac{7}{32}$-in. cubes; or in volume 0.0105 cu.in., or a difference in volume of 0.0018 cu.in. in favor of the roll product. The coke made from each product was uniform in structure and free from cracks or parting seams, experts declaring that no difference whatever existed in its physical characteristics.

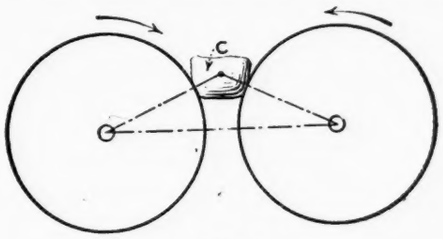



FIG. 1

FIG. 1. TOGGLE JOINT ACTION OF ROLLS

The unnoted conditions previously mentioned regarding the misinterpretations of coke-oven operators, relating to the comparative fineness of coal produced by each type of machine, are found in the difference in symmetry of dimensions of the products, revealed by testing these products for fineness on similarly perforated testing sieves. To make comparative tests useful and avoid erroneous conclusions, testing sieve perforations should have the same area, but conform in shape to the product from each type of machine. For hammer mill tests, round or square perforations should be used to conform to the cubical shape of the product, while for roll tests they should have rectangular perforations to conform to the rectangular shape of the product. If each product is properly tested there will be only a slight difference in the fineness of the two products, or in volume of individual pieces; provided both machines are maintained in operating condition.

The only advantage hammer mills appear to have

over rolls for preparing coking coal lies in their ability to crush run-of-mine and large coal; however, it is now considered economical to first size large coal, to a considerable extent, by means of Bradford breakers. Such preliminary sizing not only lessens the power required by the mill but removes any large and tough foreign matter mixed with the raw coal that might damage succeeding units of preparation. The chief disadvantages of hammer mills are the cost of frequent adjustment and renewal of the working parts, and the absorption of power necessary to force the crushed coal through the screen perforations or spaced bars.

Tables I and II show records of tests made with hammer mills and rolls, at commercial coal-preparing plants, in connection with byproduct coke ovens. The record of hammer mill tests, Table II, line 1, the mill having ⅜-in. round perforated screen, crushing soft and friable run-of-mine coal, shows that 91.30 per cent. of the product passed through a ½-in. round-hole testing sieve. The crushing operation required 0.814 actual horsepower-hour per ton of coal. Line 4 shows that the same mill, when crushing hard and tough run-of-mine coal, produced a product only 86.20 per cent.

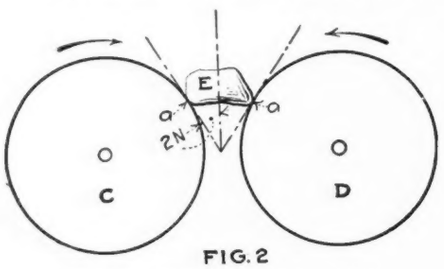



FIG. 2

FIG. 2. THE ANGLE OF NIP

of which passed through a like sieve. Here the crushing required 0.886 actual horsepower-hour per ton of coal. Thus a difference of 5.10 per cent. in the fineness of product and 0.072 hp.-hr. in power requirements is shown. This signifies that the soft and friable coal was crushed finer and required less power.

The record of roll tests, Table I, line 9, the machine cracking soft and friable sized coal, shows 87.25 per cent. of the product passed through ½-in. round-hole testing sieves, and that 0.65 actual horsepower-hour per ton was required. Line 10 shows that when the same rolls were cracking hard and tough sized coal 85 per cent. of the product passed through a like sieve, and 0.75 actual horsepower-hour per ton was consumed. This reveals a difference of 2.25 per cent. in the fineness and 0.10 hp.-hr. in the power requirements, signifying that the soft and friable coal was cracked finer and required less power.

If the operator making the tests had used a sieve with perforations of the same area as the ½-in. round-hole sieves employed, but rectangular so as to conform to the shape of the roll product, the percentage of fines produced by the rolls would have been shown to be as much if not more, while the individual pieces would have been found less in volume than those produced as above mentioned by the hammer mill and as shown on Table II, lines 1 and 4.

In discussing this question of crushing under different conditions there are four factors to be considered: (a) Compressive strength of material; (b) extent of crushing desirable; (c) work or power required for crushing; (d) comparison of various machines.

There are four ways that force may act in crushing coal or other material: (1) By direct pressure as between rolls where there is a strong force acting at low velocity; (2) by a blow on an anvil, as in stamps, where there is a medium force acting at a moderate velocity; (3) by a blow in space, as in the hammer mill or Carr

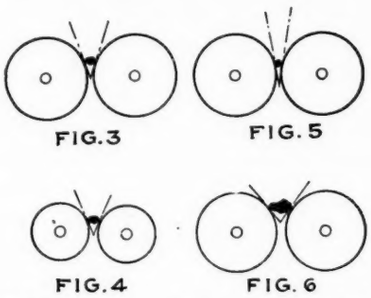


FIG. 3 FIG. 5 FIG. 4 FIG. 6

FIGS. 3 TO 6. COMPARING ACTION OF ROLLS

disintegrator, where there is a weak force acting at high velocity; (4) by grinding, as in the amalgamating pan. In the first three cases the force acts perpendicularly to the surface to produce rupture by compression; in the last case it acts obliquely, producing rupture by compression combined with shearing.

Crushing rolls act upon the lump *C*, Fig. 1, on the principle of the toggle joint. The revolving rolls being held in position in their journals, act radially upon the lump, gradually drawing it toward the narrowest space between them and finally breaking it by virtue of a compressive force superior to the breaking strength of the lump. The lump is therefore broken by compression. The spaces between rolls vary from rolls close together up to ½ in. apart. The relation between the diameter of lump fed to rolls and the space between them, that is to say the amount of reduction, is highly important if rolls are to do their best work.

If the rolls *CD* (Fig. 2) be fed with a lump of coal *E*, the tangent to the rolls at *AA*, the point of contact

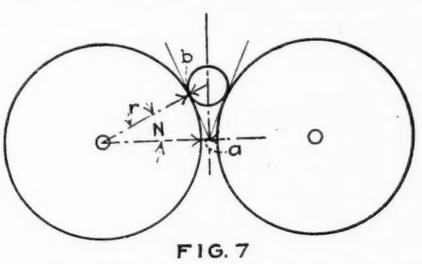



FIG. 7

FIG. 7. THEORETIC ACTION OF CRUSHING ROLLS

with the lump, meet below, forming an angle 2*N*, the half of which *N* is called the angle of nip. This angle may have values from 0 deg., where the space between rolls is as large as the feed lump, increasing until the angle is so large that the rolls cannot nip the fragments. This angle of nip in any case will depend for its value upon the diameter of the rolls, the diameter of the lump fed and the distance in the clear at which the rolls are set. It is affected by the following factors: It is diminished by increasing the diameter of the rolls, by increasing the space (clear

distance) between the rolls, and by diminishing the size of the lumps fed to the rolls.

A comparison of Figs. 3 and 4 shows that large rolls, acting on a given size of lump, have smaller angles of nip than have small rolls. Figs. 3 and 5 show that larger spaces give smaller angles of nip. Figs. 3 and 6 show that smaller lumps give smaller angles of nip.

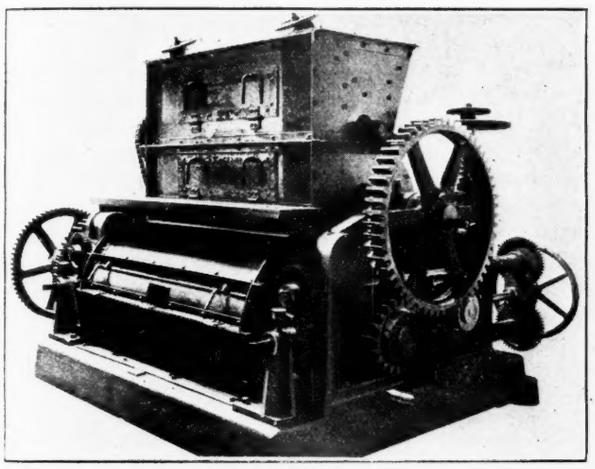
There are two values of this angle of nip which are of special interest; namely, when its value equals the angle of friction, and the rolls do no work; and when its value becomes the practical angle of nip, at which rolls will work satisfactorily. The angle $N$, Fig. 7, becomes the angle of friction when it is of such a value that a sphere fed to the rolls will just slip upon the points of contact and therefore fail to be crushed.

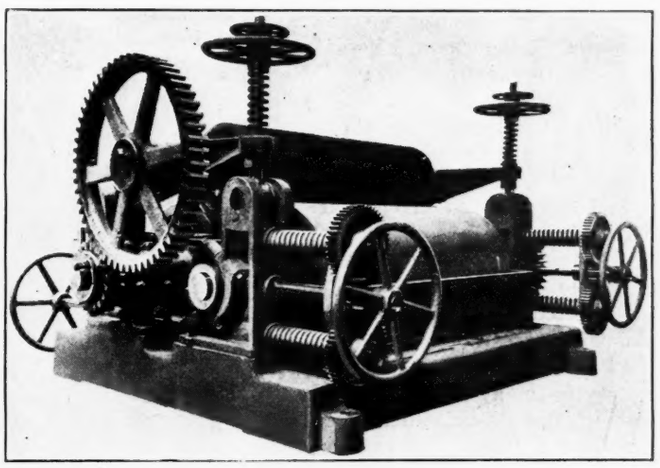
All relations between size of feed, space between rolls, radius of rolls and angle of nip can be expressed by a simple formula, which is derived as follows (see Fig. 7): If $b$ = radius of sphere to be crushed, $a$ = $\frac{1}{2}$ space between rolls, $N$ = angle of nip and $r$ = radius of roll = $\frac{1}{2}$ diameter, then

$$\frac{r + a}{r + b} = cosine\ N$$

Theoretically, increase of speed, provided the reduction in size is sufficiently slight, can be made to almost any limit; but practically, high speed with any considerable reduction will give trouble, owing to the refusal of the rolls to nip or take hold of the lumps. These fly back until a dangerous amount collects and then the rolls choke. This may be explained as follows: A lump of coal falling under the influence of gravity from heights of 6, 12, 18 and 24 in. will have final velocities of 340, 481, 589 and 681 ft. per minute respectively. Now, if the rolls are revolving at 900 ft. per minute peripheral speed, then a certain part of the friction must be used to accelerate the lump of coal to this speed before it will be nipped. This amount will be greater or less according as the peripheral speed of the roll exceeds the velocity of the particle by much or little. The use of a part of the friction for the purpose of accelerating the particle does not in itself prevent the particle from being finally nipped, but merely delays the nipping action. It is this delay during the time necessary for accelerating the particle which prevents the nipping, for until accelerated to the speed of the rolls the particle is necessarily slipping and this slipping smooths the surface to a certain extent which causes the coefficient of friction to be reduced and prevents the particle from going through.

Rolls of large diameter apparently possess three advantages over those of small diameter: (1) The increased surface allows more feed to be crushed with a single pair of rolls, but the gain is not important unless the renewals in the case of the smaller rolls are so frequent as to cause serious delay and added cost. The wear of rolls per ton crushed would probably be the same in both cases. (2) The larger rolls can make a greater reduction in size of lump, the angle of nip and the peripheral speed being the same in both cases. (3) Larger rolls have a greater capacity than smaller ones, the reduction being the same, since they can be run at a higher rate of speed on account of their more advantageous angle of nip. In case both the reduction and peripheral speed are the same for the large and small rolls, the large rolls will make the reduction more gradually and hence with less shock.





FIGS. 8 AND 9. A ROLL CRUSHER INCASED AND WITH COVER REMOVED

Some authorities advocate running one of the rolls slightly faster than the other in order to prevent the exact mating of the rolls with a consequent possible unevenness of wear resulting therefrom. This is especially true with geared rolls. The use of any considerable differentiation of this kind to produce grinding, with a view of increasing the crushing power, has been proved fallacious on hard brittle materials, since such an action requires increased power without corresponding benefit. In regard to soft and friable material, however, the case is different. The material which is soft, when crushed by smooth rolls running at equal speeds forms ribbons or pancakes, while a differential adjustment tears the material apart, completely overcoming this difficulty.

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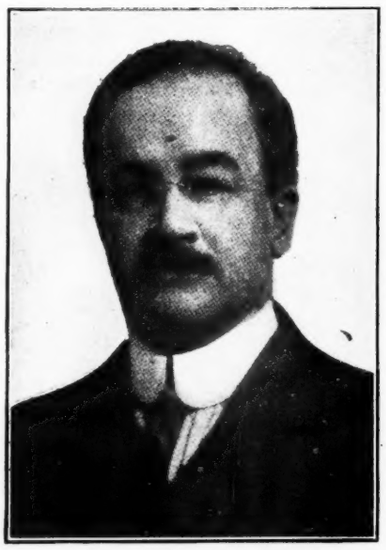
WATER-POWER HAS been used widely in industry, but it has not entered into serious competition with coal. Rather it has conserved coal for special uses in notable instances. For example, a large hydroelectric power plant in the anthracite field of Pennsylvania distributes current over a big section and releases hard coal for use in cities where smokeless fuel is at a premium.

# New England Coal Dealers' Convention

SPECIAL CORRESPONDENCE

SYNOPSIS—*Retailers devote two days to exchange of views. "Coöperation," the chief note. John E. Lloyd, of Philadelphia; George H. Cushing and Arthur F. Rice, of New York, the leading speakers. Dealers impressed with need of taking coal liberally in the spring.*

THE "Victory Convention" of the New England Coal Dealers Association was held at Worcester, Mass., Mar. 19-20. The attendance at this seventeenth annual meeting broke all records, showing that retail dealers are keenly interested in coöperation and are eager to have the benefit of the best opinion and advice in facing their various problems. The ballroom of the Hotel Bancroft was admirably adapted to the use of such a gathering; the speakers were easily heard, and there was an absence of that constant going in and out that so often mars the proceedings of trade conventions. After the dealers had been welcomed by Mayor Holmes, the first session was devoted to reports that were of unusual interest.



WILLIAM A. CLARK
President of New England Coal Dealers Association

William A. Clark, of Northampton, Mass., the many-times-elected president of the Association, paid high compliment to the Worcester Fuel Committee and to the dealers of that city who distinguished themselves by their cordial and complete coöperation last year in handling the local situation. The efforts of the Association officers to be of real service to the New England Fuel Administration were also mentioned, and prominence was given a memorandum recently sent Mr. Clark by Cyrus Garnsey, Jr., a retail coal dealer of Memphis, Tenn., and assistant to Harry A. Garfield. Mr. Garnsey strongly urged the retailers to retain the great advantage that organization had been to them during the war, and he also recommended that they enlarge the scope of their association to include some of the activities that the Fuel Administration has been obliged to give up.

The address of John E. Lloyd, vice president of the National Retail Coal Merchants Association, was received with the closest attention. Mr. Lloyd was in good voice and made a deep impression. "Every successful business," he said, "must be organized nationally, and no business can be successful if it is not organized nationally. A lesson must be learned from the thorough organization of labor, whose representatives are heard in the highest circles of government.

"The organization of business men," continued Mr. Lloyd, "can do a great deal to make union labor helpful, rather than harmful. When the employer takes an active interest in labor organizations, instead of neglecting them and permitting distrust and discontent to increase, he gains results every time. In Chicago the plan of joint meetings of employers and employed has been a great success."

Mr. Lloyd then attacked price-cutting, referring to a dictum of the Federal Trade Commission that sales less than cost constitute unfair competition. "If the retail coal dealers would only make the same effort to get the maximum price for their product the benefit to the industry would be widespread." In closing, Mr. Lloyd urged the dealers to discourage direct sales to consumers outside the usual trade channels, and to bring their influence to bear against the practice of employers selling coal to their operatives at cost. The Fuel Administration had taught coal dealers not only how to organize, but to figure costs and to that extent the dealers had been helped materially in 90 per cent. of the cities. The convention was enthusiastic in its approval of Mr. Lloyd's address.

The dinner in the evening was attended by nearly 700 persons—the dealers, their ladies and friends. There were stunts and cabaret in bewildering sequence, while at intervals the big company joined in singing popular songs. The gathering was on so large a scale that in addition to the entertainment provided by the Worcester Coal Club there were several cases of local jollification that broke out in parts of the hall. After the tables had been cleared the scene resembled nothing so much as a four-ring circus. All the veterans wore their broadest smiles. A feature of the business meeting on Thursday forenoon was a question box, answers being made from the platform. After a brief talk by Jacob Asher on the need of supporting the War Savings Stamps campaign, George H. Cushing, Managing Director of the American Wholesale Coal Association, spoke on "Coal Dividends and Profits." Mr. Cushing outlined what he regarded would be the form of Government control to be exercised in future. Those in the industry should invite supervision in what he termed the right way. Mr. Cushing drew applause when he reminded the dealers that once more they were to have a buyers' market and that wholesalers could no longer be arbitrary in passing on to the retailer the onus of settling for cars lost in transit, short weight, and other details which he felt were purely matters for the original shipper to adjust.

After an informal luncheon served by ladies of the Worcester Coal Club, Arthur F. Rice, Commissioner of the Retail Coal Merchants Association of New York City, addressed the closing session, his announced subject being "The Needs of the Hour." Mr. Rice argued that prices ought to be lower for purely economic reasons. "With the present high prices," he said, "there is every inducement for substitutes. Electric companies strive to put current into all large buildings, and par-

ticularly the hotels of New York. Once the electric systems are installed no more coal will ever be used. Great business concerns are ready to spend hundreds of thousands of dollars to get people to use their products and thus lay the broad foundation for future business, whereas the future of the coal business is threatened with a huge and permanent loss. If the remedy for this bad situation is sought in the form of high prices, then I can see worse things ahead for the coal trade."

W. H. Williams, vice president of the Hudson Coal Co., spoke in general terms of the anthracite situation. He dwelt on the great urgency of keeping the mines in operation the coming spring and summer to avoid shortage in the fall and winter. Shutdowns at the collieries add tremendously to the cost of production.

The visiting dealers missed the short well-considered papers by well-informed retailers that were so valuable a feature of last year's convention, but the addresses given were timely and thoroughly appreciated.

The exhibit of mechanical contrivances for the use of coal dealers was held in the Casino. It was unusually complete, particularly in the display of self-dumping devices for coal trucks. The Providence Gas Co. and the New England Gas and Coke Co. through their interesting exhibits made special appeals to dealers to help market their byproduct coke.

Next year the Association will meet in Springfield.

# Boiler Fuel Economy

By M. Meredith
Liverpool, England

From the average figures obtained from tests on 250 typical steam boiler plants in Britain, interesting data regarding the economy effected by the adoption of scientific methods in the boiler house have been obtained. Of the plants referred to only two gave efficiencies over 80 per cent., nine gave efficiencies from 75 to 80 per cent., 13 showed 70 to 75 per cent., 30 gave 65 to 70 per cent., 44 gave 60 to 65 per cent., 62 gave 55 to 60 per cent., 47 gave 50 to 55 per cent., while 43 gave less than 50 per cent.

The average working efficiency for the whole 250 plants was therefore 60.09 per cent. and, while 61 per cent. of the plants were working with an efficiency of less than 60 per cent., only 9.6 per cent. of the plants exceeded 70 per cent. efficiency. Again, 75 colliery steam boiler plants gave an efficiency of only 51.2 per cent. as compared with the average of 60 per cent. for the whole country.

For the purpose of making a calculation as to the possible saving of fuel by increased efficiency of the whole of the country's steam-raising plants, the average figure of the 250 plants investigated is taken as typical for all plants of the country. According to a recent report of the coal conservation sub-committee of the Reconstruction Committee, about 80,000,000 tons of coal are used annually for power production only. Deducting 15,000,000 tons used on railways, 65,000,000 tons remain, of which 90 per cent., or 58,500,000 tons, are used for power production through steam-raising. In many industries, however, much more steam is used for heating and general manufacturing processes than for power production.

It is therefore taken that the amount of coal used for steam generation in the United Kingdom is between 75,000,000 and 100,000,000 tons. If, then, the efficiency of the 250 plants tested, consisting of 1000 boilers, is 60.09 per cent., and the annual coal consumption of these plants is 2,166,000 tons, an increase in efficiency to 75 per cent. represents a saving of 430,000 tons. A similar increase in efficiency of the whole of the country's boiler plants would represent a saving of 20 per cent. of fuel, or of 15,000,000 to 20,000,000 tons.

Of the 287,000,000 tons of coal produced during 1913, 20,000,000 tons was consumed by the collieries themselves. Practically the whole of this coal provided steam for power to win the coal. This represents 7 per cent. of the total output. If these colliery plants were reorganized to run at 60.09 per cent. efficiency (the average for the country) a saving of 15 per cent., or 3,000,000 tons, would be effected. If they could be run on scientific lines so as to yield 70 per cent., a 27 per cent. saving representing 5,400,000 tons of coal per annum would result.

The question of coal economy is doubly important—first, as an immediate war measure, and secondly as part of a great national scheme of reorganization, essential to future progress. A plea has accordingly been made for the quick survey and reorganization by experts of all the boiler plants of the country, and the immediate reorganization of the largest as well the more inefficient plants, and those, too, which are always required to produce a large amount of steam for other purposes than power production. Such a reorganization will be in strict harmony with the future larger scheme of national coal economy.

## Frank R. Weitzel Dead

On Feb. 26, 1919, Frank R. Weitzel, assistant general superintendent of the Phelps Dodge Corporation, Dawson, N. M., died of influenza-pneumonia. He had resided at Dawson for nearly 14 years, and was known to almost every man, woman and child in the camp. He was held in high esteem and respect by both his employers and employees of the company, and his popularity was further attested by the large attendance at his funeral. He was endowed with a cheerful and sunny disposition which endeared him to his many friends.

The deceased was born at Wilkinsburg, Penn., Feb. 16, 1881. He entered the employ of the Empire Coal Co. at Bellaire, Ohio, July 1, 1901, as a member of the engineering corps. Here he stayed until September, 1905, when he went to Dawson City, where he was mining engineer until 1913, when he became assistant general superintendent.

The deceased is survived by a widow and two children. A mother and a sister live in Florida. E. H. Weitzel, a brother, is manager of the fuel department, Colorado Fuel and Iron Co., Pueblo, Colo.

It has been estimated that the present annual production of hydroelectric power in the United States is about the equivalent of 40,000,000 tons of coal; 400,000,000 tons of coal is used yearly in the production of steam power and electric power generated by fuel. Of all the readily available water-power in this country, only about 10 per cent. has been developed; hardly 3 per cent. has been utilized of all the power which might be developed under proper storage arrangement. There has been little encouragement in the past for water-power development owing to our laws and the attitude of the law makers. A water-power bill has been brought up in Congress, and if it is enacted into a sufficiently liberal law it should stimulate development in this field.

# Beehive Oven Supremacy Passing —But Not Yet Passed

By John L. Gans
Connellsville, Penn.

SYNOPSIS—*During the latter part of 1918 the output of byproduct coke exceeded that made in beehive ovens. It is doubtless true also that at present more byproduct coke than beehive is being made. Until the operative capacity of the byproduct plants equals or exceeds the similar capacity of beehive plants, however, it cannot justly be said that the byproduct type has gained supremacy. This condition will probably be reached in the coming autumn.*

ALTHOUGH the byproduct coke ovens of the United States gained supremacy over the beehive ovens in production in the closing months of 1918, and have maintained the lead more or less regularly since, an analysis of statistics and conditions would tend to confirm the belief that the former have yet to demonstrate their capacity to make more than 50 per cent. of the coke to be manufactured during the ordinary statistical period of a calendar year. This statement follows logically, if not convincingly, from a consideration of the fact that the outdistancing of the beehive oven has been more the result of trade conditions than of the development of the byproduct ovens to that point where they possess the physical preponderance of productive capacity.

## Byproduct Plants Attain Maximum Capacity

In the last three months of 1918 the byproduct plants had attained their then maximum capacity and were holding it with only slight variations, such as were incident to interruptions in coal supply and similar considerations. At the same time the beehive ovens were combating the influenza epidemic and suffering a constant and steadily diminishing labor supply with a resultant gradual decrease in weekly output. Under these circumstances the beehive ovens yielded more readily than the byproduct to the deterrent influences on industry which followed the signing of the armistice and the removal of Government regulations on coal and coke. The merchant furnaces, feeling the necessity of curtailing operations to proportionately a greater extent than the other interests, merchant beehive coke operations were obliged to follow suit. The bulk of the byproduct ovens being associated with furnace plants, the rate of their operation was less seriously interfered with, hence the ability of the latter to maintain the lead in coke production, which was lost by the beehive ovens, not because the capacity of the former had exceeded the latter, but because of a combination of circumstances which had made the race an unequal one.

Whether a permanent handicap has thus been imposed upon the beehive industry, or its eclipse is but temporary, remains to be proved by the events of the current year. A study of the present situation is interesting, however, when considering what has come to be the generally accepted view that the leadership of the byproduct oven is even now absolute and indisputable. When considered in their entirety, and compared with 1917, the statistics of coke production in 1918, prepared by C. E. Lesher of the U. S. Geological Survey, merely show that the byproduct ovens made a further gain over the beehive as coke producers during the latter year. Only by a comparison of the weekly records —not the totals for the year—is the fact revealed that, with the exception of three weeks, the byproduct ovens led in tonnage only during the last quarter of the year. In January, 1919, beehive production made relatively the same weekly gain as the loss shown by byproduct ovens, the former thereby temporarily regaining their position as leader, which had been lost with the first week of October, 1918, when the production stood: Byproduct, 585,281; beehive, 574,000 tons. By the first week in February, 1919, the tables had been reversed and the byproduct ovens had regained first place. Since that date, upon which the collection of byproduct statistics under the Fuel Administration was discontinued, the exact status of the two divisions of the industry is not known, but the continued decline in output of the Connellsville region alone would indicate that the actual present lead of the byproduct ovens is greater than that prevailing at the close of the year.

Mr. Lesher's statistics for 1918 credit the beehive ovens with having contributed 30,406,000 tons, or 53.1 per cent., and the byproduct ovens with 26,264,000 tons, or 46.4 per cent., of the grand total production of 56,670,000 tons of coke. Compared with the record of 1917 the byproduct ovens gained 4.2 per cent. and the beehive ovens lost a corresponding share of their contribution to the coke output of 1918. This was about one-half the rate of gain made by the byproduct ovens

COKE PRODUCTION IN THE UNITED STATES, FEB. 1, 1918—JAN. 31, 1919
(From Weekly Reports Compiled by C. E. Lesher, U. S. Geological Survey)

| Week Ended 1918 | | Beehive Coke | Byproduct Coke | Total Coke | Week Ended 1918 | | Beehive Coke | Byproduct Coke | Total Coke |
|---|---|---|---|---|---|---|---|---|---|
| Feb. | 2 | 470,000 | 366,073 | 836,000 | Aug. | 3 | 614,000 | 530,642 | 1,145,000 |
| | 9 | 510,000 | 367,675 | 878,000 | | 10 | 574,000 | 526,955 | 1,101,000 |
| | 16 | 553,000 | 381,973 | 935,000 | | 17 | 575,000 | 536,323 | 1,111,000 |
| | 23 | 567,000 | 403,296 | 970,000 | | 24 | 593,000 | 546,058 | 1,138,000 |
| | | | | | | 31 | 608,000 | 550,921 | 1,159,000 |
| Mar. | 2 | 629,000 | 420,228 | 1,049,000 | | | | | |
| | 9 | 635,000 | 458,492 | 1,093,000 | Sept. | 7 | 616,000 | 556,400 | 1,172,000 |
| | 16 | 644,000 | 466,307 | 1,110,000 | | 14 | 635,000 | 553,371 | 1,188,000 |
| | 23 | 665,000 | 469,591 | 1,135,000 | | 21 | 614,000 | 557,550 | 1,172,000 |
| | 30 | 649,000 | 473,563 | 1,123,000 | | 28 | 610,000 | 576,254 | 1,186,000 |
| Apr. | 6 | 621,000 | 466,223 | 1,087,000 | Oct. | 5 | 574,000 | 585,281 | 1,159,000 |
| | 13 | 672,000 | 469,578 | 1,142,000 | | 12 | 600,000 | 573,743 | 1,173,000 |
| | 20 | 667,000 | 470,916 | 1,138,000 | | 19 | 572,000 | 578,027 | 1,150,000 |
| | 27 | 739,000 | 475,979 | 1,215,000 | | 26 | 593,000 | 577,808 | 1,171,000 |
| May | 4 | 647,000 | 479,138 | 1,126,000 | Nov. | 2 | 558,000 | 577,757 | 1,136,000 |
| | 11 | 668,000 | 485,042 | 1,153,000 | | 9 | 558,000 | 581,665 | 1,140,000 |
| | 18 | 678,000 | 484,688 | 1,163,000 | | 16 | 552,000 | 570,990 | 1,123,000 |
| | 25 | 663,000 | 484,402 | 1,147,000 | | 23 | 521,000 | 574,847 | 1,096,000 |
| | | | | | | 30 | 522,000 | 572,239 | 1,094,000 |
| June | 1 | 612,000 | 479,824 | 1,092,000 | | | | | |
| | 8 | 636,000 | 481,997 | 1,118,000 | Dec. | 7 | 543,000 | 578,202 | 1,121,000 |
| | 15 | 661,000 | 484,290 | 1,145,000 | | 14 | 553,000 | 580,930 | 1,134,000 |
| | 22 | 610,000 | 489,239 | 1,099,000 | | 21 | 554,000 | 581,434 | 1,135,000 |
| | 29 | 604,000 | 496,274 | 1,100,000 | | 28 | 440,000 | 563,362 | 1,003,000 |
| | | | | | 1919 | | | | |
| July | 6 | 579,000 | 502,666 | 1,082,000 | Jan. | 4 | 479,000 | 546,298 | 1,025,000 |
| | 13 | 680,000 | 506,451 | 1,186,000 | | 11 | 538,000 | 541,600 | 1,080,000 |
| | 20 | 632,000 | 517,671 | 1,150,000 | | 18 | 557,000 | 559,298 | 1,116,000 |
| | 27 | 616,000 | 523,899 | 1,140,000 | | 25 | 575,900 | 558,876 | 1,134,300 |

in 1917 over 1916. In the latter year the beehive production of 35,464,224 tons—the greatest on record—was 66.1 per cent. and the byproduct production of 19,069,361 tons was 33.9 per cent. of the total.

Taking the figures for 1918, the byproduct ovens are found to have lacked 2,071,000 tons, or 3.6 per cent., of having produced a half of the coke made during the year. This fact alone would indicate that they had some distance to go before they could rightfully claim to have gained the ascendancy. Hence, as pointed out, the respective totals of the two types of ovens for the year 1918 do not make apparent the fact that the long-held distinction has been wholly lost by the more primitive of the two types. It is by a study of the month-to-month production during the closing quarter of the year that evidence is found that, for the first time in the history of the coking industry, the byproduct ovens have produced a greater quantity of coke within a given period of time than the beehive.

COMPARATIVE COKE PRODUCTION IN THE UNITED STATES
1893—1918

| Year | Beehive Ovens | Per Cent. | Byproduct Ovens | Per Cent. | Total Net Ton |
|---|---|---|---|---|---|
| 1893 | 9,464,730 | 98.8 | 12,850 | 1.2 | 9,477,580 |
| 1900 | 19,457,621 | 94.7 | 1,075,727 | 5.3 | 20,533,348 |
| 1910 | 34,570,076 | 82.8 | 7,138,734 | 17.2 | 41,708,810 |
| 1915 | 27,508,255 | 66.1 | 14,072,895 | 33.9 | 41,581,150 |
| 1916 | 35,464,224 | 66.1 | 19,069,361 | 33.9 | 54,533,585 |
| 1917 | 33,167,546 | 57.8 | 22,439,280 | 42.2 | 55,606,828 |
| 1918 | 30,406,000 | 53.6 | 26,264,000 | 46.4 | 56,670,000 |

On Feb. 1, 1918, when the weekly statistics of byproduct production began to be compiled, beehive production was 470,000 tons and byproduct 366,073 tons per week. The former rose and fell alternately, with a general upward trend, until the peak of 680,000 tons was reached in mid-July. Byproduct production grew gradually as new ovens and plants were placed in operation, attaining 502,666 tons by July 1 and the maximum for the year of 585,281 tons during the first week in October, overtaking the beehive ovens for the first time. During that week beehive production was 572,000 tons. The difference, 13,000 tons, was comparatively slight as coke tonnages are figured, but it was sufficient to register the first outdistancing of the beehive oven by its rival in the race for supremacy.

While the production of both types of ovens declined after Oct. 5, the byproduct output exceeded the beehive by 20,000 to 50,000 tons, or more, from week to week, with the exception of the last week in October and the closing weeks of January. Beginning with the first week in February, 1919, the byproduct ovens had regained their lost ground and, from all information at present available, and the fact that beehive production had dropped to 436,000 tons by Mar. 1, would appear to have retained their supremacy.

### Beehive Oven Has Seen Its Best Days

It is by giving consideration to the recent augmentation of the byproduct equipment and that in course of construction that the conclusion becomes inevitable that the beehive oven is certain to sooner or later lose first place as a producer of coke. But from an inquiry into conditions prevailing during the closing months of 1918 and the opening months of 1919, it would appear that on the basis of the existing available equipment of the two types of ovens the byproduct will not possess the facilities for permanently wresting the honors from the beehive until well toward the close of the year. What conditions in the trade may do, with respect to the relative activity of the two types, is a different proposition and lies in the realm of speculation.

The builders' capacity ratings of the byproduct plants completed and in operation in the United States on Dec. 31, 1918, was 35,211,000 tons per annum. Practice having shown that even under the most favorable conditions the byproduct plants, taken as a whole, cannot be counted to yield more than 90 per cent. of their rated capacity, on account of repairs and other causes interfering with 100 per cent. operation, the commercial productive capacity of these plants was, in round numbers, only 31,700,000 tons per annum, or an average of 609,000 tons per week. Beehive production, on a greatly reduced schedule of operation and with many ovens on the inactive list, was 30,406,000 tons in 1918, or an average of 584,615 tons per week.

### Byproduct Capacity Shows an Increase

If it is assumed that the beehive ovens will on the whole do no better in 1919 than in 1918, the byproduct ovens available for operation on Jan. 1 would, if operated at 90 per cent. capacity, maintain an average weekly lead of 24,385 tons, or a total of 1,294,000 tons during the current year. But byproduct capacity has already been increased during the first two months of 1919 by the completion of 374 ovens which, on a 90 per cent. operating basis, should add 942,000 tons to the year's output by this process. In addition to the ovens placed in operation since Jan. 1 there are 1376 in process of construction, although work has been temporarily suspended on several plants. If, as expected, these ovens are placed in operation by Oct. 1, the commercial capacity of the byproduct plants at that date will be increased by 3,467,500 tons to a grand total of 36,109,500 tons per annum, or an average of 694,000 tons per week.

Even though that capacity be attained by Oct. 1 it will be only during a part of the year that the byproduct ovens will have the capacity to produce coke at a higher rate per week than was attained by their cruder competitors in their heyday. In 1916, which was the record year in the production of beehive coke, 65,605 ovens of this type made 35,464,224 tons, and 6607 byproduct ovens made 19,069,361 tons, or weekly averages of 682,000 and 366,718 tons respectively. Assuming equated time of six months as the period of maximum production of all byproduct ovens built and building, the output for 1919 would reach approximately 34,000,000 tons, or a weekly average of 654,000 tons, or 28,000 tons less per week than the beehive average in 1916.

Since 1916 the number of available beehive ovens has been considerably reduced and practically no new plants have been built. Operations during 1918 show, however, that even under the many and severe restrictions imposed by shortage of labor, transportation troubles and the like, the beehive equipment was able to make some creditable weekly tonnages, compared with the record average of 1916. The week of Apr. 13 with 672,000, Apr. 27 with 739,000, May 18 with 678,000 and July 13 with 680,000 tons were all in excess of the banner byproduct week—Oct. 5, with a production of 585,281 tons—and reasonably within striking distance of the weekly average of 1916, had it been possible to have speeded up to near 100 per cent. capacity in 1918.

The year 1919 began with probably less than 90 per cent. of the beehive capacity of 1916 available for operation and with less than 75 per cent. of such oven

strength in blast. But with this curtailment in number and capacity a rate of operation equal to that in 1916 would still show the available beehive ovens capable of producing approximately 32,000,000 tons during the year, or an average of 614,000 tons per week, or about the same as the weekly average of byproduct ovens completed and in operation on Mar. 1. That 32,000,000 tons or more could be produced by the beehive ovens under favorable conditions during 1919 is fairly well established by the results of 1918 when 30,406,000 tons were produced when operating at much less than capacity of the ovens actually in use and with many serviceable ovens constantly out of blast.

It becomes apparent, therefore, that in point of productive capacity the lead of the byproduct oven over the beehive cannot be said to have been indisputably established until the capacity of byproduct ovens in operation has become equal to the task of making an average of more than 614,000 tons of coke per week, or a total of more than 32,000,000 tons within a twelvemonth. This can be attained when ovens now building have come to full production, but until this is an actuality the humble beehive can claim its ability to turn out the greater volume of coke if trade conditions will only provide the incentive and the opportunity to show what can be done.

# Proposed Coal-Loading Machine

By H. R. Kirkbride
Allegheny County, Pennsylvania

NOW that the great war is ended and the world's markets will soon be opened up for competition, it devolves upon us to show our supremacy as the leading business nation of the world; to not only "be on the way," but to be "there with the goods" in quantity and quality, and at a price that any and every customer shall have no cause to question.

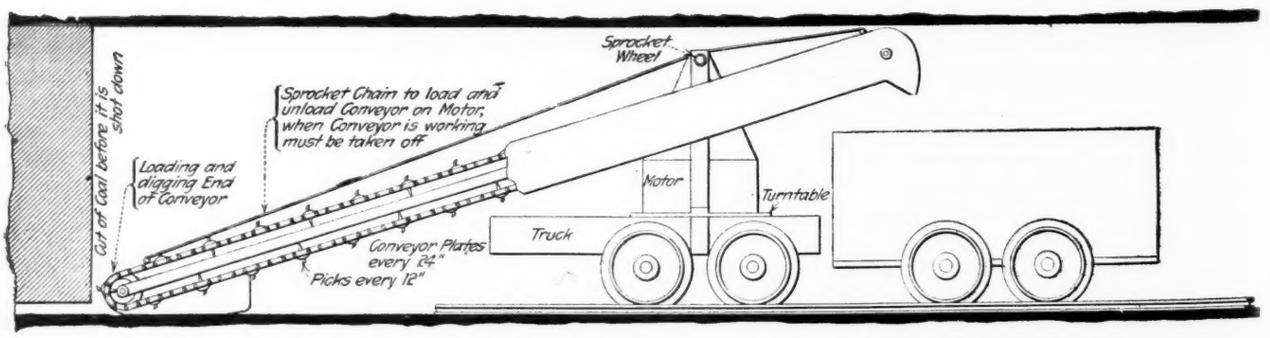
I will acknowledge that we have about reached the point of perfection in regard to ventilation, haulage, drainage and undercutting of coal, but I fail to see where we have made any progress worthy of mention in loading coal at the working face. We here employ the same old puffing and blowing, cursing and sweating, shoveling and scraping, with a little old-fashioned hand shovel, the same as our great grandfathers used when they were boys and worked in the mines. And if these old miners could come back again just to make an inspection, no doubt they would tell us that there was only one important thing about the mines that had us stuck, and that would be we shoveled and loaded coal at the face today in exactly the same way they did.

The question to me is this, and it seems to have got lost or strayed away from coal mining:

If it is economical for a coal operator to spend $1000 on a machine to undermine the coal and save 15c. on the cost per ton mined and double the amount produced, why would it not be economical for that same operator to spend $2000 on a machine to load that coal and save 30c. on the cost per ton loaded and likewise double the amount of coal produced? I have often heard it said that the cheapest thing that the mine owner had about his mine was the workingman. This might have been true in days gone by, but I could not accept it for the truth today.

In mines where the coal is 5 or 6 ft. thick and undermined with punching machines, the undercut is snubbed down. At the front the cut is 12 or 15 in. high and tapers down to about 3 in. at the back. The cut is 5 or 6 ft. deep. When the cutting is completed and the coal is blasted down, it falls away from the roof and the solid face of coal behind the cut. It is here broken up in fairly good shape for loading into the pit cars.

When the coal is mined and prepared for loading in this manner, I cannot see why loading machines should not be employed, more especially when we know that two men with a machine like the Myers-Whaley or the Halby shoveling machine can load as much as 200 tons per shift. By installing machines to load coal fewer men would be required to obtain a given output, because with machines to undermine the coal and machines to load it about two or three working places is all that would be required to keep these machines in steady operation without much moving about. One place would be getting cut while the other was being cleaned up, and *vice versa*. More coal would be produced with less rail, wire, pipe and other supplies, while lost motion would be cut down to a minimum in hunting around for a car of coal, as is often done in the mines nowadays.




SIDE VIEW AND PARTIAL SECTION OF PROPOSED COAL-LOADING MACHINE

I would not expect an ordinary shoveling machine built after the steam-shovel type to be successful where the coal is undercut with chain machines, because the coal remains too compact and solid even after it is shot down, so that the kind of a machine necessary in order to be successful in loading coal after chain machines must have the combined principles of digging and pulling the coal loose, shoveling it up, while at the same time it must convey and elevate it to a dumping point above the top of the pit car.

I herewith present my ideas of a machine which, if built and put to work, I feel sure would be a success.

In mines where the coal is 4 to 6 ft. thick and undercut with chain machines, the cut is generally 6 ft. deep and not more than 4 or 5 in. high from point to back. It takes more powder to blast this coal down than if it had been undercut with a punching machine; that is, to break it up so that it can be loosened sufficiently with a pick by the miner so that he can load it. If the average miner loads ten tons of coal per day after chain machines, he is working reasonably well. It would take a man two or three days to load out a cut as above described in a room about 25 ft. wide. Two men operating the machine shown in the accompanying illustration would clean up such a cut in about 2 hours, because with the conveyor built with an average working pitch of about 3 in. to the foot and the conveyor 18 ft. long and operating at a conveyor speed of about 200 ft. per minute and with blades 3½ in. deep, 2 ft. wide and spaced 2 ft. apart, this machine theoretically would deliver approximately 2 tons per minute. This obviously would be an impossibility in practice, but suppose that by reason of moving from one room to another and on account of the time that the conveyor would be stopped to change cars, throw off large pieces of bony, set posts, wait till butt shots were fired, etc., it would only be able to get, say, one-eighth of its theoretical output as good practical work. This would equal about 120 tons of coal loaded per 8-hour day.

To load by hand 120 tons of coal at 51c. per ton would cost $61.20; then, if two men were paid $10 each to run this machine and load 120 tons, there would be a clear saving of $61.20 — (10 × 2) = $41.20. Thus by using this conveyor coal would be loaded for less than 17c. per ton instead of 51c. as now, and this would be done with less hard work and more satisfaction.

This kind of machine, if built light and detachable from the truck, with the motor built compactly on one side of the conveyor instead of underneath it, could be used to load coal in any mine where chain machines are used for undercutting. I have seen coal as low as 2 ft. 3 in. thick cut regularly with chain machines.

A machine of this type could be built at almost any mine blacksmith or machine shop where chain machines are used. I have often noticed large pieces of sheet steel, sprocket chains, sprocket and gear wheels, car wheels and axles, cutting machines and locomotive motors that were not in use. A sorting out of the junk pile, a little time and patience and a good mechanic is about all, in my opinion, that would be required to build a loading machine of this character. I will here leave this problem for someone else to handle who may be in better shape and equally as anxious as myself to see progress made in coal mining.

## THE CAUSE

*Written Expressly for* COAL AGE

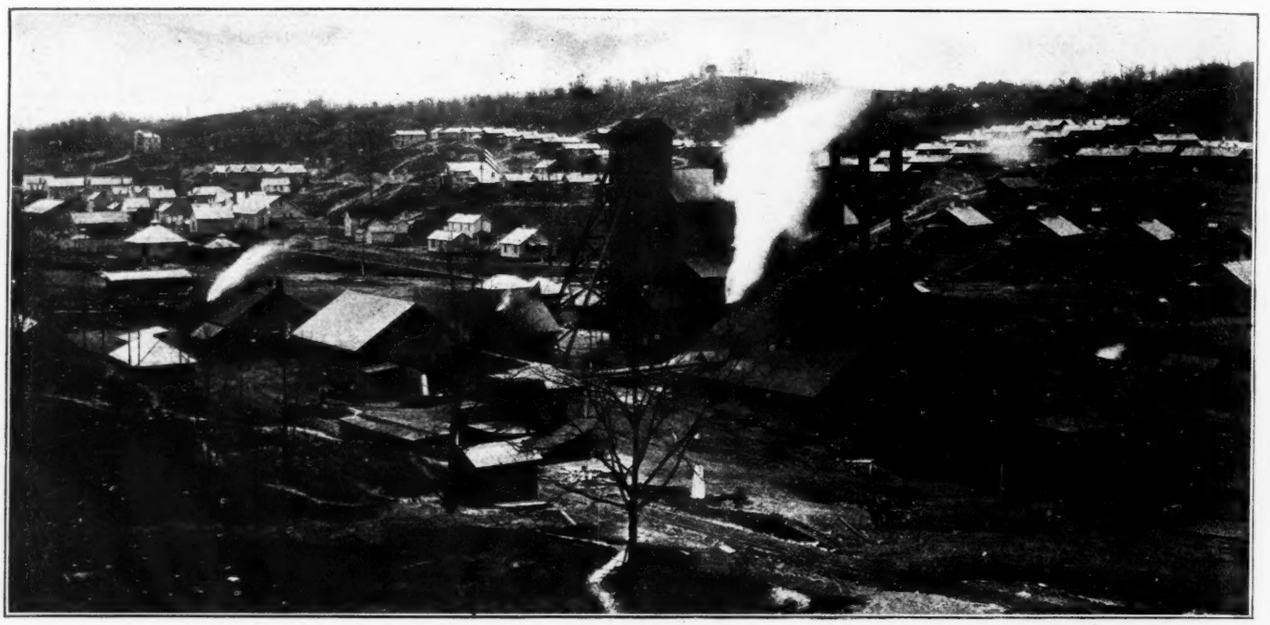
BY BERTON BRALEY

*BOLSHEVISM grows out of bitter woes.*
*It's a weed that tyranny has sown.*
*Exploitation, greed, fertilize the seed*
*Till a noxious jungle-plant has grown.*
*Ruthlessness and force cannot stop its course,*
*They but make it tower to the skies;*
*But where Justice reigns over men's domains,*
*Bolshevism withers up and dies!*

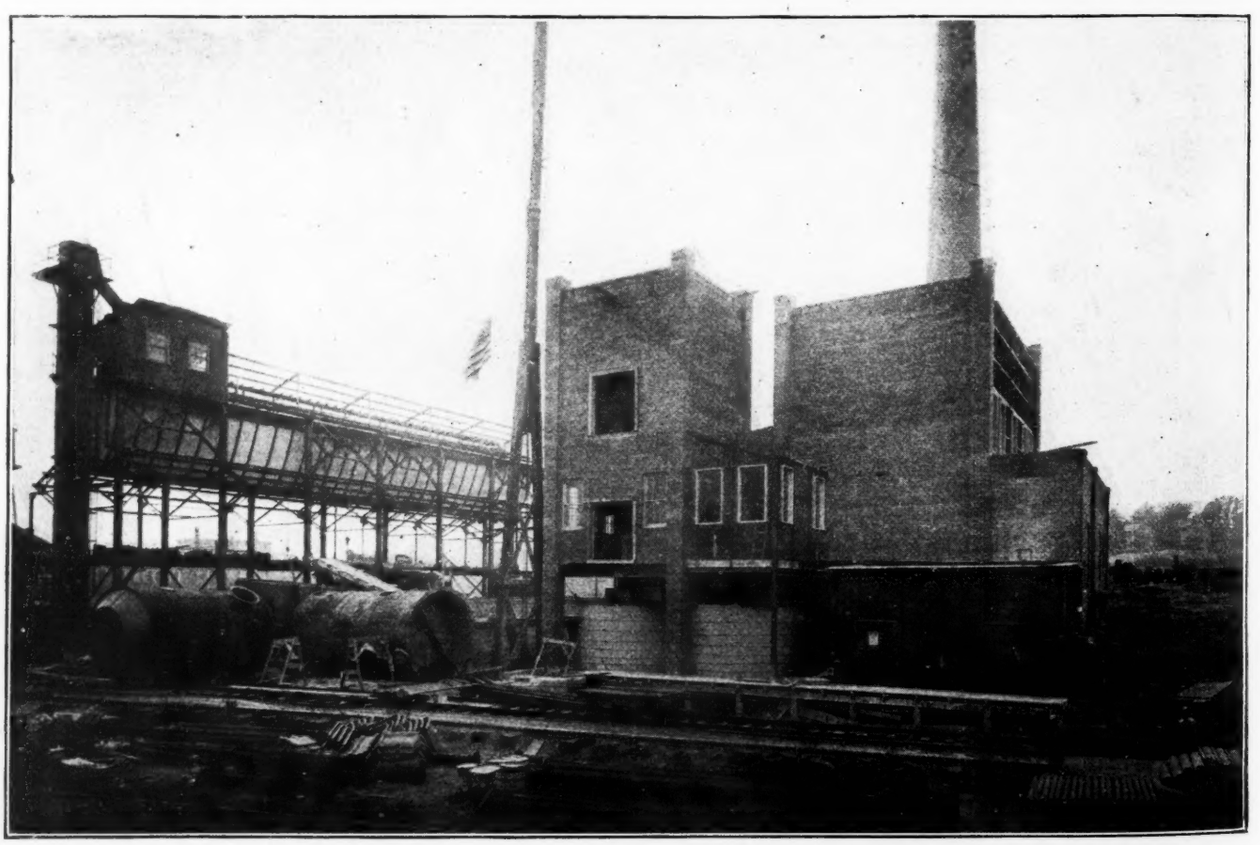
*IF it rears its dread, monstrous hydra-head,*
*Search the social system for the cause.*
*Where it waxes strong there is something wrong,*
*Wrong about the methods or the laws.*
*Bolshevism comes out of rotten slums,*
*Ignorance and want and discontent;*
*These things make it thrive, grow and keep alive,*
*Till it looms immense, malevolent!*

*BOLSHEVISM'S clutch loosens at the touch*
*Of the hand of Justice and of Right.*
*It will perish where life is fair and square,*
*Cease to be a menace and a blight.*
*Look, then, to yourself; let no greed of pelf*
*Blind you to the fact you may not doubt.*
*Guns will never cure—here's your weapon sure,*
*Justice put the Bolshevist to rout!*

# SNAPSHOTS IN COAL MINING

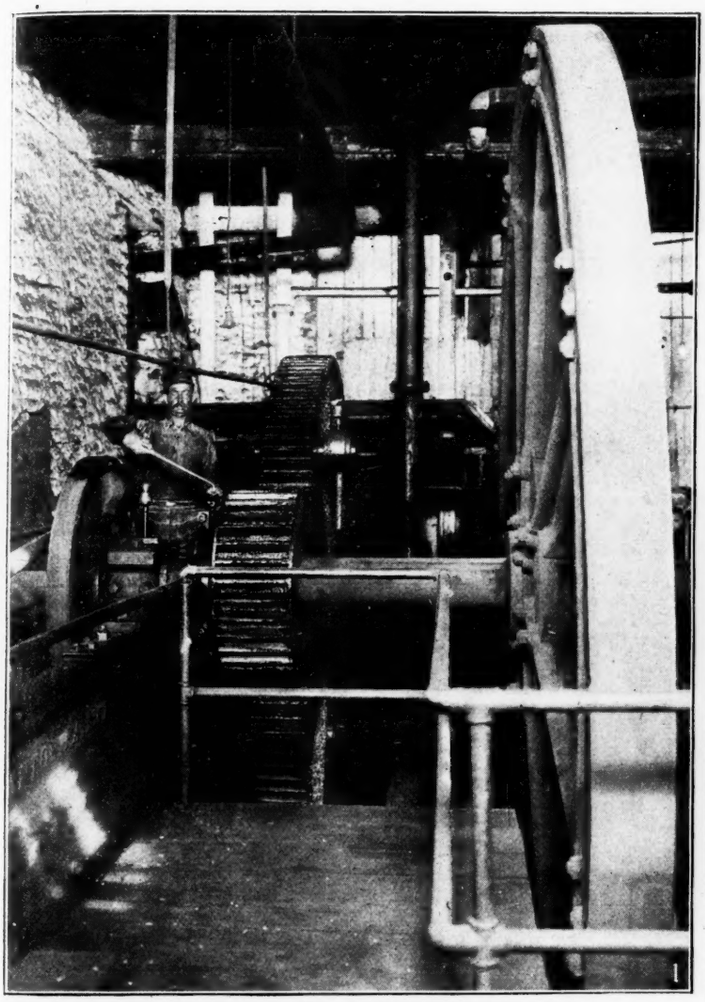


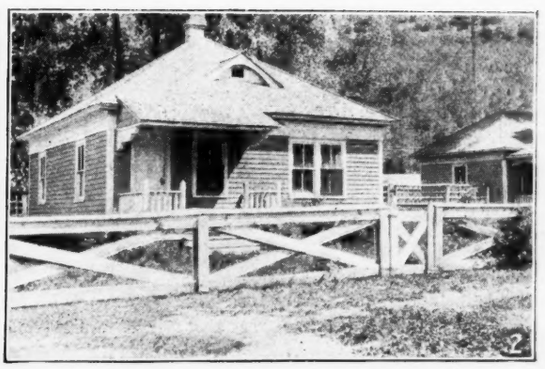
VIEW OF THE SURFACE PLANT OF THE SUNDAY CREEK COAL CO. MINE AT SAN TOY, OHIO

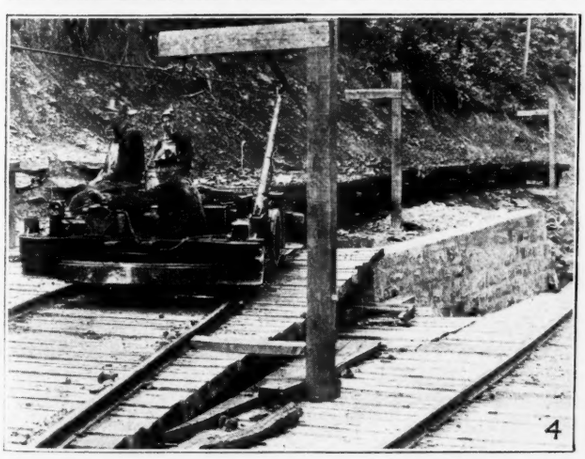


LYMN PRODUCER-GAS PLANT (BYPRODUCT PRODUCER) OF THE MONONGAHELA VALLEY TRACTION COMPANY AT FAIRMONT, WEST VIRGINIA

Seven units consuming about 75 tons of coal per day, producing the equivalent of 1,500,000 cu.ft. of natural gas in addition to other byproducts







SOME VIEWS IN AND AROUND COAL-MINING PLANTS

1—Old engine-driven pump still in use at a Pennsylvania mine. 2—Type of miner's cottage at a Western operation. 3—View of the Stag Canon Fuel Co. plant in New Mexico. 4—Trip on its way to dump, Vulcan Coal Co., Vulcan, W. Va. 5—Group of miners' children at play in a Western mine village playground.

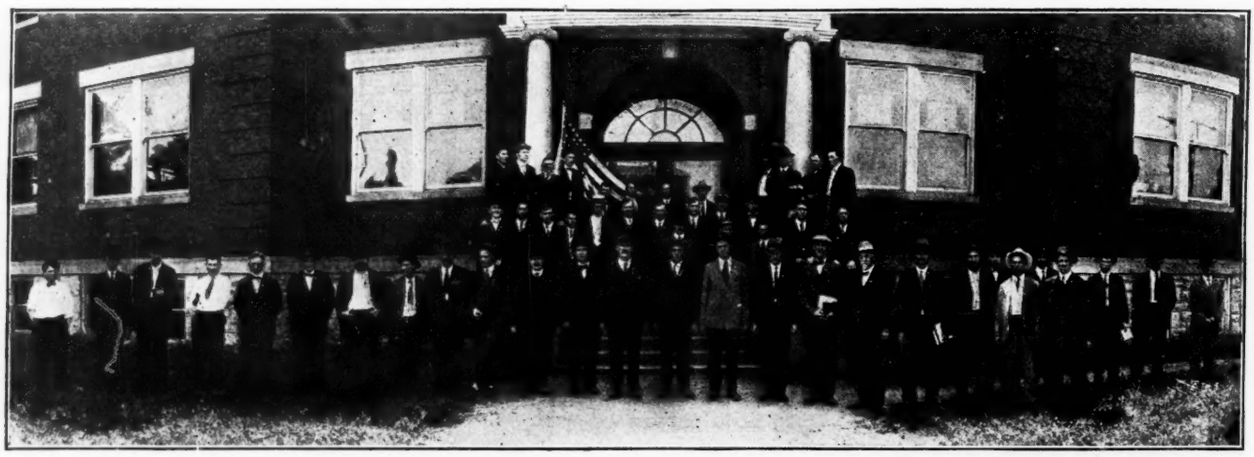
## FIVE DOLLARS FOR BEST MINE PHOTOGRAPH

A READER can oftentimes obtain more information from a rapid glance at an illustration than from a laborious reading of paragraph after paragraph of mere descriptive matter. The illustrations accompanying the write-up of a new mine plant, for instance, help convey the story; used in conjunction with a well prepared article, they are an invaluable aid to proper understanding. All this is by way of preamble to a confession. *Coal Age* is meeting with ever-increasing difficulty in obtaining photographs of general interest and technical value to colliery men. So we want to enlist the aid of every reader of this paper. To stimulate interest in this matter, the editor of *Coal Age* will pay $5 each week for the best photograph sent in by any subscriber. Prints submitted must be for the exclusive use of *Coal Age* and must not have been previously published. All photographs not awarded the $5, but accepted for publication, will be paid for at a liberal space rate. The sender's name and address, with a brief description of the picture, must accompany each photograph. All prints will be returned, if desired.

# Practical Miners' Course of the University of Kentucky

Many readers of *Coal Age* will be pleased to know of the progress made in the teaching of practical coal mining, during the past decade, at the University of Kentucky, at Lexington. In December, 1907, the Board of Trustees of the University established an eight-weeks' course for practical miners, at the request of Prof. C. J. Norwood, then dean of the College of Mines and Metallurgy. In June, 1918, Professor Norwood resigned his position at the University to accept the appointment, by the governor, as chief of the Department of Mines in Kentucky.

At that time the Board of Trustees of the University merged the three engineering colleges—College of Civil Engineering, College of Mechanical and Electrical Engineering and College of Mines and Metallurgy—into a single college known as the College of Engineering. Prof. T. J. Barr then succeeded to the position of professor of mining engineering and, as such, is in charge of the present eight-weeks' course for practical miners, which will open Apr. 1, 1919. Professor Norwood will be recognized standing in the front row, the eighth man from the right, and Professor Barr the fifth from the left, in the illustration.



CLASS OF 1918 IN UNIVERSITY OF KENTUCKY PRACTICAL MINING COURSE

There is every prospect that the class this year will be a large one, and Professor Barr has prepared an elaborate schedule covering the various subjects relating to the mining of coal. In the preparation of this course special attention has been given to the requirements of men desiring to present themselves at the examination for certificates of competency, as required by the state mining law. A point worthy of mention is the fact that the University has made instruction in this course entirely free, there being no charge even for matriculation.

Instruction is given by men who have had practical mining experience and been in daily contact with miners at their work and in their home surroundings. By reason of this experience and long association with the work of mining coal they are able to approach each subject from the viewpoint of the practical miner and present it more simply and clearly than otherwise would be possible. At the close of the course, May 24, each man that has done satisfactory work will be awarded a certificate of proficiency from the University.

For the convenience of those who live at a distance, but who desire to take the examination before the State Mining Board, which meets at Lexington, it has been arranged that the Board of Examiners will be in session May 26, the second day following the close of the course at the University. This arrangement will be greatly appreciated by those taking the examination, as it will avoid the necessity of their making an extra trip to Lexington for that purpose. Following is a copy of the schedule of instruction showing the several subjects taught in the course and the topic studied under each subject:

1. *Arithmetic.*—Instruction will be given in arithmetic, according to a man's needs, throughout the course.

2. *Coal Mining.*—(a) The different systems of laying out the workings, and the applicability of each, etc. (b) Blasting; dangerous and safe methods; "permissible" explosives; care and handling of explosives. (c) Timbering; principles and different methods; good and bad joints; computing the strength of pillars, distance between props, etc. (d) Sinking shafts and slopes; safety appliances for shaft and slope mines.

3. *Ventilation.*—Principles and methods; furnaces and fans; coursing, splitting, regulating and measuring the air current; use of anemometer, water gage, etc.; overcasts and undercasts; exercises in working out problems.

4. *Drainage.*—Siphons, pumps, air-lifts; setting pumps; laying pipe lines, etc.

5. *Mining Machinery.*—Haulage and hoisting; steam engines, gasoline motors and electric motors; compressed air; coal cutters, etc.

6. *Mine Gases.*—Nature, effects and indications of the presence of each; reducing dangerous conditions; exercises in problems. Illustrated with experiments, for which ample time has now been allowed.

7. *Safety Lamps and Testing.*—Principle of the safety lamp; care and use of safety lamps; methods of testing for gas. An excellent collection of various types of lamps is available for use in explaining the features of different makes. Natural gas is used for practice in detecting "caps" on the safety lamp.

8. *Explosions.*—Causes and safeguards; management of dust.

9. *Mine Fires.*—Causes and management of fires; reopening workings after a fire.

10. *Rescue and Relief.*—Methods of procedure after an explosion; organization of parties; dangers to be guarded against; temporary ventilation; expedients for carrying the air through the mine; use of rescue apparatus.

11. *Surveying and Map Drawing.*—Use of surveying and leveling instruments; putting up sights, marking off rooms at various angles; laying off curves, etc.; drawing the mine map; making blueprints. Men may devote all the course to surveying if they so desire.

12. *Kentucky Mining Law.*—A thorough drill in the mining law is given, and the formation of mine rules is discussed.


## Operators Insist on Stabilization of Coal Prices

It is evident that coal operators who met with the Industrial Board Mar. 26 and 27 convinced the majority of the members of the board that the National Coal Association is right in its stand in insisting that the Government agencies which use fuel must be a party to any agreement involving the lowering of prices and their stabilization. Chairman Peek, of the Industrial Board, was taken by surprise at the attitude of the Railroad Administration. At the outset, he apparently was of the opinion that the Railroad Administration would be a party to any stabilization program which might be agreed upon. The coal operators, however, had had more experience with the Railroad Administration than had Mr. Peek. They insisted that the Railroad Administration commit itself in a definite manner. When it came to giving positive assurances, it became apparent to all that the Railroad Administration was reluctant to depart from its practice of buying coal as cheaply as possible without regard for the effects on the industry, labor and the general public.

Two significant events of recent occurrence convinced the operators that they must take a determined stand in their relationships with the Railroad Administration. In the first place, they had seen the splendid spirit displayed in the announced railroad fuel policy of the Director General disregarded in practice by his subordinates who have in charge the actual purchases of the necessary coal. In a public statement given to the press, the National Coal Association declared that "the Railroad Administration has adopted unfair practices which would drive the price of railroad fuel below the cost of production." In the second place they had learned that the steel manufacturers had discovered, to their regret, that the Railroad Administration feels in no way bound to buy rails at the stabilized price agreed upon with the Industrial Board. These instances led to the adoption of the following resolution:

Resolved by the representatives of the bituminous coal operators of the United States, in meeting assembled in Washington, Mar. 27, 1919, at the request of the Industrial Board of the Department of Commerce, acting in conjunction with the United States Fuel Administrator, that the operators of the country declare themselves ready to go into conference with the Industrial Board with a view to coöperating with the Government in stabilizing prices of bituminous coal during the readjustment period upon their being assured by the Industrial Board that the United States Railroad Administration and other Governmental agencies purchasing coal are also willing to coöperate.

While the discussion centered largely round the Railroad Administration, because the railroads take one-third of the bituminous production of the country, other Government purchasers of coal are held to be in the same class. The Navy's purchases, for instance, are of the greatest importance to the Pocahontas district. The Army will continue to be a large consumer for many months to come. The Interior Department maintains a central coal yard in Washington from which all the Government departments are supplied. The operators contend that no price stabilization could hope to amount to anything unless the Government itself buys at the terms that it arranges for other consumers.

As an evidence that the Industrial Board recognizes the validity of the stand taken by the coal operators, it is understood that the President's cabinet is to be asked to pass upon a definite policy in regard to Government participation in the stabilization program of the Department of Commerce. It is understood that the President is to be consulted before such a policy is announced.

## Asks Interpretation on Contract Clause for Railroad Coal

The Attorney General has been asked to interpret the contract clause which the President had inserted in all the contracts eliminating the payment of brokerage or commission on contracts obtained from the Government. The interpretation has been asked by the Railroad Administration. The action was taken as the outcome of conferences between George H. Cushing, for the American Wholesale Coal Association, and H. P. Spencer, of the purchasing division of the Railroad Administration. The clause is contained, of course, in all contracts for railroad fuel. This led Mr. Cushing to formulate the following questions, which are the ones which have been referred to the Attorney General:

Some mining companies employ their managers of sales on a salary and allow them a commission on all coal sold. This arrangement is covered by a contract between the operator and his sales manager, and involves the whole output of the mine. Would the existence of such a contract bar that operator from selling coal to the United States Government for the use of the Railroad Administration?

If such a mine should sell to the Railroad Administration, would it bar that sales manager from collecting his commission on that coal?

Some coal operators own mines in several fields. These operators have organized separate selling companies, which buy the coal from all these groups of mines or at least dispose of it for the mines on the same basis. Under Sec. 6, would such selling company be prohibited from selling coal to the United States Government for the use of the Railroad Administration?

A third group of mines, related but not identical, in ownership, disposed of its entire output to a selling company which is owned by the majority interest in the several mines. In some cases this selling company pays a fixed price per ton for this coal. In others it gets as its compensation a percentage of the selling price. In still other cases it is allowed a minimum fixed price per ton from the operators plus a portion of any price obtained in excess of a stipulated minimum. Is this selling company prevented by Sec. 6 from selling coal to the United States Government for the use of the Railroad Administration?

Another group of mines is owned by a railroad company. To satisfy a decree of the United States Supreme Court, these coal mines have sold their entire output to a separate selling company. This selling company owns the coal outright. Under Sec. 6, is that selling company prohibited from selling coal to the United States Government for use of the United States Railroad Administration? In a word, are the mines owned by the railroad prohibited from disposing of their coal to the owner railroad by reason of this contract of sale?

By far the largest percentage of the mines of the United States are small mines. The average production of coal per mine, in fact, is less than 500 tons a day. On the average, the coal-producing companies own less than two mines each. This means that the average operator of the United States has less than 1000 tons of coal a day to sell.

However, the average mine has a market extending over more than five states. It is impractical for an operator having less than 1000 tons a day to sell, to support a sales force large enough to cover five states or more and do so at the cost of sales which is not prohibitive. Therefore, the average coal-mining company depends upon some selling agency to distribute his coal. The wholesaler selected becomes responsible to the mine for marketing a hundred per cent. of its product. The wholesaler, sometimes, buys the coal at a fixed price per ton at the mine and gets his compensation by being able to get for the coal a higher price. In most instances, the wholesaler gets his compensation by agreeing with the producer to accept a fixed percentage of the selling price. In other instances the wholesaler gets his compensation by deducting a fixed amount per ton from the selling price on all of the coal. Such wholesaler is the selling department of the mine. Under Sec. 6 he is seemingly classified as a third party in the transaction. Does Sec. 6 prevent this wholesaler from selling coal to the United States Government for use by the Railroad Administration?

Are the coal mines which sell through such wholesaler prohibited by the fact of that selling contract from participating in the business of supplying the railroads with coal?

Ordinarily each railroad buys its normal supply of coal from a nearby producing mine. Sometimes—such as in pre-strike periods and in cases of a grave and general disturbance of the coal market—the railroad finds it necessary to get additional coal from a more distant field. In such cases the railroad has been accustomed to request wholesalers in coal to canvass the distant field and procure large quantities for them. The railroads under such circumstances have compensated the wholesaler in the customary way. Under Sec. 6, are the railroads prohibited from using this purchasing agent in this way?

In times when the supply of coal has been short in the past, it has been the practice of the railroads to avoid advancing coal prices upon themselves by saying that they were "out of the market." They knew, however, that a certain amount of coal was being shipped to market intended to be sold to them. They knew that this coal would soon be under demurrage and that the owner of it would be willing to sacrifice it in order to move it. Taking advantage of this situation, they have entered into a secret contract with a broker to purchase this "distress" coal for them and have compensated him in the customary way. Under Sec. 6, would the railroads be prohibited from using the broker in this way? Would the transaction be invalidated by the fact that the broker had been so employed and paid?

In many instances coal mines have gone into bankruptcy. They are managed by the court. The receiver has appointed one man to operate the mines and another to sell the coal. Both men are employed on a commission basis. Under Sec. 6, would the sales agent appointed by the court on a commission basis be prevented from selling coal to the United States Government for the use of the Railroad Administration?

In many cases a wholesaler in coal purchases for cash a given amount of coal per month from a mine without regard to whether it is the whole output of that mine or any fixed proportion of it. He thereby becomes the owner of that coal. Under Sec. 6, is he prevented from selling that coal at a profit to the United States Government for use of the Railroad Administration?

## Navy Will Survey Alaska Coal Field

The Navy Department has announced that a commission, consisting of five members—three naval officers, a mining engineer and a geologist—will be sent to Alaska to ascertain what steps should be taken in connection with the development of the Matanuska coal fields.

The commission sailed with the vessels recently ordered to leave Puget Sound Navy Yard on Apr. 1 to patrol Alaskan waters. It will be under the direction of a line officer of rank and will include two junior officers, Sumner Smith, superintendent of mining in Alaska, and Theodore Shapin, geologist.

In the naval appropriation act, which failed of passage at the last session of Congress, was the following provision: "One million dollars of which, or so much thereof as may be necessary, may, in his discretion, be used by the Secretary of the Navy in mining coal or contracting for the same in Alaska, the transportation of the same, and the construction of coal bunkers and the necessary docks for use in supplying ships therewith, and the Secretary of the Navy is hereby authorized to select from the public coal lands in Alaska such areas as may be necessary for use by him for the purpose stated herein." With a view to reopening the whole matter before the next Congress the Secretary of the Navy ordered the present investigation.

## Railroad Administration Would Retain Tidewater Coal Exchange

The Railroad Administration continues to insist on the retention of the Tidewater Coal Exchange. The principal reason is shown by the following figures setting forth the actual savings to the railroads:

| | |
|---|---|
| Tonnage dumped | 48,785,967 |
| Number of cars dumped | 967,800 |
| Cars saved on gross detention basis | 1,747,600 |
| Saving effected on per diem basis | $1,048,56 |
| Cars saved | 47,03 |
| Investment necessary to have procured 47,035 cars at $2900 per car | $136,401,50 |
| Interest on above investment at 6 per cent | $8,184,09 |
| Credits extended to members (excluding Government members) tons | 3,000,00 |

Rapid progress is being made in the revision of the rules of the Exchange and in the reclassification of mines. That work is in the hands of the following committee:

J. R. Thomas, president, Carbon Fuel Co., Charleston, W. Va.; W. C. Ireland, sales manager, Jamison Coal and Coke Co., Pittsburgh, Penn.; Harry Boulton, president, Central Pennsylvania Coal Producers Association, Clearfield, Penn.; John J. Tierney, vice president and general sales manager, Crozer-Pocahontas Coal Co., Philadelphia, Penn.; John J. Brophy, treasurer and general manager, Piedmont and Georges Creek Coal Co., Frostburg, Md.; Arnold Gerstell, sales manager, Percy Heilner and Sons Co., Philadelphia, Penn.; W. A. Marshall, president, New York Wholesale Coal Trade Association, New York, N. Y.

# EDITORIALS

## The American Job and His Comforters

NO GREAT confidence in the future of business will come to the citizens of the United States by listening to the assurances of Secretary of Commerce W. C. Redfield, for that functionary has been vouchsafed many visions of a conflicting nature which he has been at no pains to reconcile. In fact, Mr. Redfield is a two-headed Janus. It has been noted for long that one head shouted "Trade with Europe" and another head cried as vigorously "Forbear."

He has indeed reached nearer than any other the Scriptural injunction, "Let not your right hand know what your left hand doeth." With one hand he would aid American trade to enter European markets regardless of any peculiar aptitude for such invasion; with another he would restrain that same trade in that identical purpose, and do it equally without regard to the fitness of things. He reincarnates for us that Launcelot Gobbo, whose uncertainty of view so greatly amuses the audience in a presentation of the "Merchant of Venice."

But in regard to domestic trade, his attitude is equally perplexing. " 'Buy only what you need, but buy it now,' seems good patriotism," he remarked when addressing the National Retail Dry Goods Association last February. By the way, this was not a well-selected audience for the delivery of such a message, for everybody, as far one can observe, is buying dry goods to the limit. Advice to purchase is not needed. The dry-goods trade needs only the vanity of the public, which never fails so long as the purse holds out.

The need is not for expenditures in trivialities, but for outlays in permanent possessions—houses, railroads, water-works, sewers and roads. Mr. Redfield stimulates these basal industries by such words as these: "It cannot be expected that prices will fall soon to their pre-war level." Surely this is cold comfort. Before the war the cost of a house might be $4500. To construct that same house today would cost $7000. After a few years, Mr. Redfield suggests, if he does not actually say it, a similar house may be constructed for $4500. The investor would lose $2500 on his expenditure and meanwhile, if he lets the house, he will get only an insignificant net rent and if he occupies it he will make little by being his own landlord, for while present-day rents may be considered high on the basis of cost of original construction and on the former costs of maintenance, they are not high on work now constructed especially when present costs of maintenance are also considered.

This is the "modest part" Mr. Redfield is demanding of the home builder and the investor in property. "It may mean," he adds, "a little sacrifice here and there in paying at this moment a *somewhat higher* price than we might pay *a month or two later*, but we have become accustomed to sacrifice for the country's sake." Mr. Redfield does not italicize "somewhat higher" and "a month or two later." The fact is, his vision should have stretched over a longer period. The word "sacrifice" would then have been well justified, for the price so regarded would be by no means only "somewhat higher."

But all this argument of Mr. Redfield's is not based on facts. The cost of living as a whole is to go up, not down, though edibles will probably fall somewhat. Above all, rents and the price of bricks and mortar are to rise and not fall. There is no risk at all in building. Construction can go ahead without any apprehension. It is not self-sacrificing to build, however patriotic it may be. It is a wise move, one dictated by prudence. The only doubt that arises in the mind finds a place there because of the attempted stabilization of prices by Government pressure.

The Government is forever alarming the public. Its action retards rather than accelerates business. Men wait for the Government price. If there is no reduction, they still wait; if there is one, they take courage to hope for more. No worth-while business was ever secured on a declining market. It is such a market Mr. Redfield is trying to secure for us, telling us all the time that it will come about very slowly. Yet he is doing all he can to hasten a fall in market prices.

No wonder the public halts despairingly. Every purchasing agent is afraid to buy lest Mr. Redfield should succeed in doing him an injury. Meanwhile that worthy pats him on the shoulder and says: "My friend, help the country by buying and I will try to hurt you by lowering the value of what you buy. Stimulate the country by your sacrifices while I scare it stiff by my actions and speeches."

*Every engineering office should be furnished with a library of books containing data fundamental to the work of that department. The library should be supplied by the company and augmented as often as appears necessary. Why should the engineer be required to supply the mental aids to his work—the books—any more than the physical aids—the transits, levels and tapes? With such salaries as are paid, many men are obliged to let their work limp rather than buy the multiplicity of books necessary for complete and ready reference.*

## Resumption Is Already in Evidence

SINGLE-TRACK minds—and such cerebrations are in the majority—are always ready to assume that on no basis can any business structure be reared but that on which it has been reared in the past. There are engineers who, seeing an uncompleted tipple, breaker or washery, and not having the plan, would say: "Pull it down. I will design another." Certain minds seeing the present wage structure, and the attitude of labor and capital, have despaired of erecting on it anything of value and have called at once for tools of demolition. "Pull it down," was their cry, "and build a new structure on the original bed rock."

Reconstruction rather than resumption was all that would please them. Tories and radicals were equally

vocal in favor of reconstruction, each seeking a diametrically opposite end. To the tory a fall of the structure of the last few years, with dust, noise and destruction seemed better than resumption. But nevertheless the resumers are winning. We go forward from where we left off. The war structure is still a part of the building, as stable as anything that was there before and as solid as anything we may add thereto hereafter.

It is strange how many people fail to react immediately to a new order and try to persuade themselves into believing it is merely temporary. But the new order is developing a conservatism of its own. New wages and new prices have a permanency that cannot well be disturbed. A torn-up tree or other plant can seldom be replanted, and indeed few there be that want to try the experiment of disturbing such a well-developed organism.

The price of stocks have been steadily upward for the last two or three weeks. The output of coal is on the increase. Coal orders are already more numerous. The price is going up, especially the price of anthracite. The reports of all the authorities on trade which we publish weekly are now cheering. *Bradstreet*, the *Dry Goods Economist*, the *American Wool and Cotton Reporter*, *Dun* and the *Iron Age* all tell stories of resumption in all, or in their special, fields. We are growing warm toward business. What some of us have reasoned, millions of us are beginning to know. The tide has turned. In a month or two prices will be a trifle higher if anything, and yet no one will be talking about high prices for we shall realize that they have come to stay and that what we buy can be sold for more than was paid for it. When that is the case, prices are no longer high.

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*"A man in his time plays many parts." In the morning he dons his working clothes and goes into the mine and does service for others. Anon he leaves the mine and dresses to do his marketing, requiring others to do him service. What a marvel is in that dressing! Before it the miner is employee, after it employer; before it servant, after it master. Who shall deny the solidarity of labor and capital when the twain are one flesh and change from one to the other by the shedding of a coat?*

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## Law of Permanence of High Prices

IN GENERAL the permanence of high prices amounts almost to the dignity of a law. There are exceptions, it is true. But speaking broadly high prices tend to remain, provided they last long enough to increase wages. The pocket which has been expanded almost never hangs with the old grace of outline. The reason is that wage rates tend to have permanence, the public mind having become receptive and favorable to the figures by which wages are denominated.

But this is not all. It appears that after a war at least some prices tend to increase rather than decrease. Wars that did little to stimulate some prices proved able to stimulate them immensely later, and some wars which raised prices greatly were followed by further price stimulation thereafter.

In what follows, the figures quoted are those of E. A. Kebler, published in the *Iron Age*. He shows No. 1 foundry pig iron sold in Philadelphia in October, 1862, at $18.61. In August, 1864, the same quotation on a gold basis was $29.44, the increase resulting from the Civil War. Lee surrendered in April, 1865. One would expect the price to fall with the ending of what, on the face, would appear to be the whole exciting cause, but the average price for the year 1866 was $46.67. The Franco-Prussian War, which was declared July 10, 1870, when No. 1 foundry at Philadelphia was selling at $32.75, ended May, 1871, with the same pig iron selling at $35.50. In June, 1872, the price had mounted to $53.37.

The Spanish-American War did little to stimulate the price of pig iron till its close. Valley bessemer, when the war really began—January, 1898—was $9.12. War was actually declared April, 1898, the price having risen to $9.66. When the war ended—August, 1898—the price was only $9.60, yet in December, 1900, it had reached $24.20. The Russo-Japanese war, lasting from Feb. 10, 1904, till Sept. 9, 1905, raised the price of Valley bessemer from $12.64 to $14.95. In May, 1907, the price had mounted to $23.28.

Thus the high prices that close a war and fill every one with alarm are followed by a flood that sweeps everything before it. There is even now a telltale white cap on the free surface of the gently receding waters which shows that the overwhelming wave of high prices, noticeable after all wars, is preparing to hurl itself landward.

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*Did you ever see an Italian, Slovak, Slav or Hungarian workingman wearing spectacles? Either the people of Italy, Checko-Slovakia, Jugo-Slavia or Hungary have exceptional vision or there are a large number of them stumbling along in semidarkness, unsafe not only because language makes them dumb, but because defects of vision make them blind. Faults, blamed to cerebration, which, if defective, cannot be cured, may really be due to astigmatism or to the unadjusted focal length of the crystalline lens. Such defects of this kind as are congenital are probably more likely to be found among workingmen than among superintendents and managers, for these physical defects militate against advancement in the social scale.*

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## Coal Resources of Germany

A SHORT time ago there appeared in *Coal Age* a request from a Montana correspondent asking for any information that might be available in regard to the coal reserves of Germany. The inquiry caught the eye of George Otis Smith, director of the United States Geological Survey, and he at once appointed one of the geologists of the Survey, Eugene Stebinger, to the task of compiling the information asked, from the records of the department.

It should be stated here that the U. S. Geological Survey, under the guidance of its director, has recently been engaged in extending its service by compiling vast stores of information and data relating to the mineral resources of other countries, which are now available to those seeking such facts.

The contribution regarding the coal resources of Germany, prepared especially for *Coal Age*, by Mr. Stebinger, will be found on another page of this issue in the Discussion by Readers department. It is valuable as forecasting the future of the world's coal trade by the presentation of suggestive data.

# THE LABOR SITUATION

EDITED BY R. DAWSON HALL

## General Labor Review

Every prospect seems favorable to a strike of long duration soon after the Peace Conference comes to an end in Europe and the ratifications are received. It is questionable whether a strike is such an evil as some regard it. Nothing would do as much as a suspension of work to give tone to the market and make the hesitating and bargaining consumer turn in his orders early. Even the prospect of a big strike might bring the prosperity we are seeking. When purchasers begin to fear that their orders may not be filled unless placed early, they will deluge the markets with inquiries and the market place with unavailing outcries.

For the good of the United States and for the advantage of the whole world, the six-hour day must not be put in operation, certainly not suddenly. It is a revolutionary provision to say that we will do with only 75 per cent. of the prosperity we have been enjoying hitherto. It may be said that we have already cut the hours from 12 to 10 and from 10 to 8, but the reduction from 12 to 8 hours has been slow. It has been accompanied by the speeding-up process. It had its justification in the greater efficiency inherent in the short-time laborer. Few men *worked* 12 hours. Nature would not permit it. They stayed on the job 12 hours and did as little as they could.

### A SIX-HOUR MAN WILL EARN A SIX-HOUR LIVING

On the other hand the eight-hour man can easily keep up his zest for every one of the eight hours. He could hardly be more enthusiastic if he worked only six, so there is no economical advantage securable in a six-hour day. It may, however, be justified by the thought that men need more leisure and could do with less goods, but if there is anywhere a man who desires less goods he is extremely hard to find; and it is well understood that the workman seeks more leisure without any countervailing reduction of his power to purchase.

Resistance to the desired shorter time is therefore a public duty of the operator which he will probably perform even if it involves a strike. He will be equally well justified in opposing the institution of Saturday as a holiday. As for increases in tonnage, daywork, yardage and deadwork, the operator could pay them and turn the charge over to the public, but the public is not disposed to pay any more for coal and might prove restive. A refusal to grant the mine worker what he wants is therefore more than likely.

### IF TIME IS SHORT COAL WILL BE SHORT ALSO

If we have a six-hour day and a five-day week, there is bound to be a shortage of coal. The bituminous mines have worked nearly every winter an eight-hour day and six-day week. They produced under that arrangement 60 per cent. more than they will under that proposed, and yet they barely filled the demand for that season. Formerly they got a large increase of force from across the seas month by month. A careful investigation by the National Coal Association shows that as soon as the war is over 36,000 foreign-born miners will go abroad and half of them will stay. The men going overseas constitute only 2.4 per cent. of all the present force. Those who will remain will constitute about 1.2 per cent. This does not seem much, but the flow should be the other way.

There is reason, therefore, to expect an extremely busy winter even if the mine workers work a full 48-hour week. With a 30-hour week the public is not likely to be satisfactorily or even safely supplied. As usual, the mine operators will be recommended by the public to give the 30-hour week, will be asked to concede the wage increase and then blamed when, as a result, cost rises and the demand for coal is not met.

The export activity of the United States in Sweden, Holland and Brazil is being used as a reason why Great Britain cannot afford to accede to the miner's request for a six-hour day and for largely increased wages. It is likely that the British miners will call on our miners to hobble the American coal trade with the same hampering restrictions they are able to impose on British trade. Output is hereafter to bear equal fetters the world over. That will handicap all nations equally and so will be fair. That is, it will be just as disastrous to the American workman as to the British. The real pay of both will be equally cut.

## Slowness of Run To Affect All Equally

At a meeting of the officers and members of the grievance committees of the locals of eight mines of the Lehigh & Wilkes-Barre Coal Co. it was decided that all mine workers must stay away from the mines on "idle days." Each local will be asked to list such work as is regarded "necessary." At this meeting representatives declared that at some collieries the coal that was mined in two days was brought out in one day. Thus the day workers were getting only one day's pay for two days' product. To make this practice of thrifty miners unprofitable a fine of $15 or the calling of a strike was threatened.

The complaint is not so much against the company as against the men who work so steadily. The locals discussed calling on the company to break up the practice. The men are complaining that some men get nine or ten cars a day and others but one or two. They assert that the successful work of the men who thus make large wages is featured whenever increased wages are demanded. It is then shown that they have made large wages and it is argued that no increase should be given. This is the reason, say the grumblers, why meager increases are the rule. However, any one who has been around the mines knows that there are other, and extremely important, reasons for differences in output, these differences relating to the steadiness, energy and skill of the men. The best places are given to the most reliable workers. If there is a bad place it is apt to fall to the man whose work is so poor that the management wishes he would quit.

On Mar. 13 Local No. 506 passed a resolution vigorously condemning miners at the Locust Spring and Locust Gap collieries who cut coal on idle days and attached a fine of $25 for each offense. Similar resolutions providing fines have been passed by many locals in the Shamokin, Mt. Carmel and Mahanoy City districts. The locals are determined to put these resolutions into practice. The General Mine Committees of Shamokin and Mt. Carmel, which met at Kulpmont, fixed the fine, not at $25, but at $50.

## What Else Could He Expect?


and until Old Man Economics changes his nature, it's about all the little fellow can expect!

*Courtesy of Current Affairs*

## Mine Reverts to the Frick Scale

The mine workers of the W. J. Rainey Coke Co., in the Connellsville coke region, have been on strike during the past week because of a decision on the part of the company that it will no longer supply free explosives for the shooting of pick-mined coal.

The operators in the Connellsville region follow, in general, the "Frick scale," a scale made by the H. C. Frick Coke Co., which is usually posted by the other operators of the region around Uniontown and Connellsville immediately after the Frick company announces a change in wage. The Frick scale provides that free explosives shall be furnished for the shooting of machine-mined coal, but that what little explosive is needed by the pick miner shall be provided by himself.

During the war several of the Connellsville operators, seeking to hold their men, set aside this exception and supplied powder to all who needed it in their work. Now that the demand for coal is lessening and prices have shown a weakening, the practice has become a burden, and the companies are desirous of returning to the scale provision. When the Rainey company tried to get from under their revision of the scale the men struck.

It is reported that many of the men desire to continue at work, but have been detained from so doing by fear of violence on the part of the leaders of the strike. For this reason the State Police were called on for protection, and operations were resumed Mar. 27 with a partial force.

## Resent Punishment of Intimidators

Trouble is brewing in Raleigh County, West Virginia, where on Mar. 19 thirteen members of District No. 29, of the United Mine Workers of America, were indicted by the Raleigh County Grand Jury charged with being parties to a shooting at the mines of the E. E. White Coal Co. that took place in November, 1917, placing the lives of several miners in jeopardy. Two felony indictments were returned against each man, one for attempted murder and one under what is known as the Red Man's Act. The men who are indicted will come up for trial at the June term of court. They are: Lawrence Dwyer, international board member; Obe Clendennin; Ed Snyder; Toney Stafford; George Lucas; Tom McGinnis; Dorr Snuffer, Tom Murphy, Ed Hornick, Will Owens, Tom Lethco, Tony Sarazzo and Karl Kram.

If the men are convicted on either count it will mean a sentence in the penitentiary. For that reason feeling runs high among the miners and some of the bolder ones are resorting to threats as to what will happen when and if the men are tried. At preliminary hearings there were manifestations of this spirit of resistance to the law.

## Want Shorter Day but No Bolshevism

The convention of District 21, United Mine Workers of America, at Muskogee, Okla., adopted resolutions denouncing the Industrial Workers of the World and the Working Class Union and organizations preaching Bolshevism in the United States. The convention framed a policy to be recommended to the International Convention, the basic principle being a six-hour day, which, it was asserted, will keep the men at work and at the same time eliminate surplus production.


*Courtesy of "Current Affairs"*

## Great Britain's Miners Do Not Strike

The miners in Great Britain, except about 7000 in South Wales, seem to be willing to accept the ruling of the majority in the Sankey commission. That unimportant 7000 are already on strike. While, however, the miners are pacified there are others who now seek an increase. The railroad men want about a half billion dollars more pay per year, and the agricultural laborers are also seeking a larger remuneration. The cotton industry is also looking for increases in wage.

The scheme has been to carry this burden as taxation and make those pay it whose incomes have been halved or more than halved already by tax charges. Others who are asked to pay it are the brain workers whose incomes have not risen to accord with the general increase in the cost of living. "Make the frugal pay," is not a safe doctrine for any nation. Spending her savings, how will Great Britain ever be able to sustain her commercial undertakings on which the prosperity of her people depends?

However glum and uncertain the situation may be in Great Britain, congratulations cannot be withheld now that a strike of the miners seems unlikely, for no one, except the railroad men, have an equal power to make matters uncomfortable. If the strike which was to have been called on Mar. 22 (in case all the demands of the miners were not granted) had actually been called, the result would have been disastrous in some places within as few as three days, if press notices are to be credited.

But the miners' conference decided to use discretion. It did not favor an automatic strike, and on Mar. 26 it decided to recommend the acceptance of the Sankey report and provided for a ballot to be taken on the subject. The conference urged the men to continue at work on day-to-day contracts until the ballot could be taken.

It will be remembered that a general industrial conference was summoned by Premier Lloyd George last February. It proposed to consider the causes of labor unrest. It adjourned after a short session, leaving a committee to make the proposed investigations. That committee has come to certain conclusions and it will report on Apr. 4. The committee was a large one. There were 30 representatives of the employers and an equal number of representatives of the labor unions. The recommendations are said to be quite far-reaching and it is declared that they were unanimously adopted by the committee. Their publication is eagerly awaited by the public.

The British troubles have been quite extensively described in these columns because they affect the United States closely. Our labor matters are quite apt hereafter to be linked with those of Great Britain, for the workingmen realize that competing nations, like competing employers, can only continue to do business if compelled to pay like increases in wages and give comparable improvements in working conditions.

On Feb. 26 Robert Smillie, who is president of the Miners' Federation of Great Britain, made an appeal to the coal miners of the United States as follows:

"I note that it is already rumored that arrangements are being made to import coal from America in the event of a strike here. I think I may appeal with full confidence to my comrades, the mine workers in the United States, to refuse to assist the British capitalists who are trying to defeat our efforts to improve the standard of living of our mine workers over here."

## Shorter Hours Demanded in Germany

The miners in the Essen region of west Germany adopted a resolution, Mar. 17, demanding a further reduction in the working day. They want a 7½-hr. day to begin in April, a 7-hr. day to begin in 1920 and a 6½-hr. day to be put in operation in 1921.

A prominent Socialist member of the National Assembly, named Sachse, tried to induce the men to remain satisfied with the 8-hr. day just recently introduced, but passionate protests and threats of an immediate strike broke in on his presentation of the needs of industry and of the public.

# How a Mushroomed Cutter May Raise the Devil

*Safety letter from Consolidation Coal Company to its Safety Committees*

On November 9, an assistant foreman was cutting a bolt from the bottom of a mine car, when a piece of the cutter flew off and struck him in the eye. The eye was destroyed.

THE blows of the sledge on the top of a cutter gradually flatten out the head, mushrooming it down around the sides. At last, under a final blow of the sledge, a burr from this mushroomed head lets go and flies away like a bullet from a gun. Around steel works and machine shops where they use chisels and cutters frequently they have found out the danger of mushroomed heads on tools and they wage a continuous war against them. But around the mines — I'll leave it to you fellows, and if I lose, I'll buy the hat — there's not a single man who has worked in the mines for a year, who has not seen so many mushroomed cutters and chisels that he almost believes that that is the way they come from the factory.

Let us wake up on this point. Let us start a war against mushroomed chisels, cutters and other tools and not stop till every last one of them has been to the shop and had some first-aid work done on it by the blacksmith. I am told that the best way is to cut the burrs off the head cold and then dress it up on the emery wheel; but don't forget GOGGLES MUST BE WORN WHEN DOING A JOB LIKE THIS. Please don't let us lose an eye in doing a safety job. Let us make this job a safety job through and through, a job for safety and done safely. This is just a little side line in our regular Mine Safety work, but let us make a good clean job of it while we are at it, so that we can report next month that every tool from the blacksmith's to the trackman's has been made safe.

# DISCUSSION BY READERS

EDITED BY JAMES T. BEARD

## Traffic with Germany

*Letter No. 2*—I was much interested in reading the letter of S. D. Hainley, *Coal Age*, Jan. 30, p. 243. The question he raised, in regard to whether or not we should traffic with Germany, is a two-sided one and, before it can be answered, each side must be thoroughly and carefully considered. What Mr. Hainley has said in regard to our longing to see the Huns driven back to Berlin is true. It is also true, as he has stated, that "Germany is defeated but not conquered."

Far better would it have been for Germany and for the rest of the world if she had made peace the day the United States entered the war, but her pride kept her from doing this. It would have been better for her had the Kaiser remained at his post instead of fleeing his country, which is now suffering from the spread of Bolshevism and its industries undermined.

However, viewing the question from the standpoint of the future, we have everything to gain by assisting to put German industries again on their feet. Previous to the war, goods "made in Germany" found their way into every country. Many of these manufactures could not be duplicated elsewhere. The breaking out of the war and consequent stopping of importations to this country from Germany was a matter of great inconvenience and loss to many of our industries.

These concerns were obliged to remodel their factories and study to produce what they needed to carry on the industries in which they were engaged. Instances of such conditions are found in the lack of German dyes, chemicals and various fine instruments. Some of these have since been produced in this country at a considerable cost of study and labor that, in many respects, has been a benefit to our own industries.

The question of the future traffic with Germany is a broad one, and I hope to see it fully discussed.

Rawdon, Que., Canada. C. MCMANIMAN.

## Coal Resources of Germany

[In response to the request of *Coal Age* for what information might be available regarding the coal reserves of Germany, including any recent discoveries and asking for a brief discussion of the present status and probable changes in the German coal trade as a result of the war, George Otis Smith, director of the United States Geological Survey, writes: "I take pleasure in sending you, herewith, a few notes on these questions, together with a short résumé of the coal situation in that country, prepared by Eugene Stebinger, a geologist of this Survey."—EDITOR.]

*Letter No. 1*—Referring to the inquiry regarding the coal resources of Germany and the prospective development of the coal industry in that country, which appeared in *Coal Age*, Jan. 9, p. 71, and to which my attention has recently been called, permit me to say that there have been no recent discoveries of coal, in Germany, important enough to change her status as to reserves, or at all comparable with the finds in Kent County, England; the Campine field, in Belgium; or the additions to the Dutch reserves made by the discoveries in Holland.

The northern limits of the Ruhr Basin, lying east of the Rhine, in Westphalia, which is by far the most important coal field of Germany today, have always been indefinite owing to the gradually increasing depth of the coal beds and the uncertainties of mining under the deep cover of the overlying barren formations, which are full of quicksands and troublesome water-bearing horizons.

The estimates of the reserves in Westphalia are, therefore, subject to considerable manipulation, but there has been no additional information gained that would tend to remove any of the uncertainties, in this field. It can, furthermore, be stated that any addition to the deep-lying and inaccessible reserves of a country where the total coal supply is large enough to last many hundreds of years, can have but little practical importance for the present generation.

### GERMANY'S PRODUCTION AND CONSUMPTION OF COAL

Germany's recent position in the coal trade of the world can be briefly summarized as follows: In respect to reserves of unmined coal, she ranked the first in Europe, having a total tonnage of over 55 per cent. of all the coal on that continent, as compared with 25 per cent. for the British Isles. If the known or actual reserve figures, alone, be considered, thus confining attention to what might be termed "commercial reserves," rather than to the ultimate resources obtainable, Germany's proportion then drops to 38 per cent. of the total European tonnage, as compared with 54 per cent. for the British Isles. These reserves are almost entirely bituminous coal, an unusually large proportion being of a coking grade. The reserve of anthracite is insignificant.

In world production, Germany has ranked third, following Great Britain very closely. During the ten years previous to the war, however, her output had been increasing at over twice the rate for Great Britain; and if the war had not intervened would probably soon have exceeded the British production. Her coke output had risen to 32.2 million tons, or over one-half of that of all Europe and 50 per cent. greater than that of Great Britain, her nearest competitor.

In consumption of coal, Germany has ranked second in the world, following the United States, while in exports she also ranked second, following Great Britain, her total exports being about one-half of that of the latter country, of whose coal she was one of the largest importers. In consumption per capita, however, she ranked fourth, the amount being 2.12 tons per person, as compared with 4.82 tons for the United States.

### GERMAN COAL DISTRICTS WEST OF THE RHINE

There are two coal districts lying west of the Rhine, in Germany, in the territory now occupied by the armies of the Allies and the United States. These are the Saar field and the left of Rhine fields. These two

fields produced only 11 per cent. of the total coal output of Germany, in 1913, and but 7 per cent. of the coke output. The Saar field, alone, produced nine-elevenths of this coal and nearly all of the coke. The total of the coal reserves of these two districts has been estimated as amounting to only 7 per cent. of the total reserves of Germany, prior to the war. The portion of the Saar Basin lying in Alsace-Lorraine is comparatively unimportant, having produced barely over 20 per cent. of the total production for the field in 1913.

Nearly all of the coal of Germany lying east of the Rhine and amounting to over 90 per cent. of the total reserve, is concentrated in two great fields: the Ruhr Basin of Westphalia lying just across the Rhine, and the Upper Silesian field in the extreme southeastern portion of Germany. The latter of these fields is largely inhabited by Polish-speaking peoples.

### The Ruhr and Upper Silesian Coal Fields East of the Rhine

The Ruhr Basin contains over 52 per cent. of the total coal reserves of Germany and produced over 114 million tons, or over 60 per cent. of the total coal for the country, in 1913, and 83 per cent. of the total coke output. The latter was used in producing over two-thirds of the iron and steel output of Germany, besides forming the basis of her extensive chemical industry, in the manufacture of coal-tar derivatives. About 62 per cent. of the immense coal reserve of the Ruhr Basin is made up of coal that can be coked, under present practice.

The great value of the Ruhr coal field is much enhanced by excellent transportation facilities. Ocean-going vessels can ascend the Rhine to the west edge of the field, thus making the export facilities equal to those of the various British coal fields bordering on the sea. Strange to say, however, a strictly overseas export trade, comparable with the British foreign trade in coal, was never developed.

The Upper Silesian field, second in importance to the Ruhr Basin, was estimated to contain about 40 per cent. of the total German coal reserve. It yielded 23 per cent. of the total output of the country in 1913. The coke of this field, however, is relatively unimportant. The coking coals make up only about 10 per cent. of the total reserve, while the annual coke output is only about 7 per cent. of the national total.

### Other Coal Deposits of Germany

An account of the coal industry of Germany would not be complete without mention of the lignite and brown coal mining and the utilization of these products, which in the years prior to the war were developing very rapidly. In 1913 over 87 million tons of lignite and brown coal were mined in Germany, amounting to more than double the lignite production from all other world sources, and exceeding 31 per cent. of the production of all classes of coal in Germany. About 30 per cent. of this output was manufactured into briquets.

The lignite is mostly extracted from open cuts and, in these, is worked almost entirely by machinery, the labor involved being comparatively unimportant. During the war this feature made it possible to actually increase the output of lignite, while the output of bituminous coal fell off nearly 30 per cent., owing to labor shortage.

Immediately prior to the war, German exports of coal had risen to about 40 million tons, annually, as compared with 70 million tons for Great Britain, and about 16 million tons for the United States, the only other important exporting nations. During the previous seven years, the total German exports had increased very rapidly, which was largely at the expense of the British coal trade. The total increment for that period was over 58 per cent., as compared with a 1 per cent. increase of British exports, during the same years.

These increases, at the expense of British trade, were made principally in Belgium, Holland and France. The German exports were distributed as follows: To Austria-Hungary, 30 per cent.; Holland, 18 per cent.; Belgium, 16 per cent.; France, 15 per cent.; Italy and Sweden (together), 9 per cent.; Switzerland, 7 per cent.; and Russia, 5 per cent. It is noteworthy that the distribution of German exports was almost entirely to immediate neighbors, the strictly overseas exports, so important in the British trade, being of very minor importance.

Possible changes, in the coal trade of Germany and resulting from the war, especially with reference to exports, are obviously very difficult to forecast at present and cannot receive serious attention, before her internal problems and the complicated political and economic problems confronting the Peace Conference have been settled.

Changes in the German coal trade, however, are not likely to be so far reaching as those in the trade in the bewildering array of manufactured articles that, heretofore, have been sent to every corner of the world; because, as was pointed out above, German coal was distributed almost entirely to her immediate neighbors, over one-half of her coal exports going to countries with whom she has not been at war.

Eugene Stebinger, Geologist,
Washington, D. C. U. S. Geological Survey.

## Future of Mine Labor

*Letter No. 1*—The foreword that appeared in *Coal Age*, Feb. 6, entitled "Perpetuating the Thrift Habit" should be of deep interest to every reader, whether he is an employer or an employee, in the coal industry. The writer draws attention, incidentally, to the labor situation in this country at the present time and finds that the proportion of married home owners is but 4 per cent. and that of married renters 11 per cent. of the entire force employed in the coal industry. The foreword urges the necessity of coal companies developing thrift among their employees, which is a most timely suggestion.

A careful analysis of the present working conditions in coal mining inclines one to the belief that the mine worker has but a poor chance to save. It is more probable that he will be obliged to draw on his savings that he has already laid by for the future. Should affairs in the coal industry take a downward trend, it is more than likely that a majority of coal miners will be compelled to dispose of their Liberty Bonds, in order to pay their store bills. This is particularly true of American miners who have their families to support.

In addition to the severe conditions brought about by the war, the spread of the influenza epidemic has thrown a heavy burden on the miner. Almost every coal miner, here, has been more or less knocked out by the "flu" and been compelled to take a lengthy

vacation, while confined to his bed or unable to leave the house and go to work. But, in the meantime, the bills have been growing; food must be bought and rent paid. The result is that anxiety and unrest have grown apace among the miners, who realize that they are not making a living.

Someone will ask what the miner did with his $150 that he formerly made in two weeks' time. Let me attempt to answer this question, at least in part, by citing a single instance that came under my observation not long ago. The facts are as follows: There worked, in one of the mines at this place, a Croatian by birth, whose name was John Seminovich. John was a champion coal loader. Last summer his output was over 445 net tons, which, at 59.85c. per ton, brought him over $266.

It may be said that this man ought to have saved $100 each month. He was stricken, however, with the epidemic that visited the town, being one of its first victims. For two months, the man was confined to his home unable to work. When he did recover and started to work in the mines, some foolish friend advised him to drink plenty of whiskey. Acting on this advice, John took more than was necessary and was unable to go to work again for a few days, which drew still further on his small savings.

This instance is but one of a hundred similar cases; and let me ask, Can it be wondered that many of our miners are, today, selling their bonds to meet their bills? I was told that some miners, in a neighboring town, sold $50 bonds for $30, being anxious to take anything they could get. One miner told me that he was not fool enough to let another man make money on his bond; but if he was unable to sell it before the ship sailed for his homeland, he would stick the bond in the fire and let Uncle Sam have the money, as he could not wait twenty years for his payment.

### Importance of Maintaining Immigration

A short time ago there was an interesting discussion, in *Coal Age*, on the "Americanization of Foreigners." Some may think it an easy task; but one who is better informed and more familiar with the situation as it exists today will form his opinion only after a close study of facts and figures. The immigration statistics show that from 1900 to 1910, the influx of foreigners to this country was 13,515,886, which was a half-million more than the whole population of the United States in the year 1830. From 1914 to 1918, there was a loss in immigration amounting to 2,800,000, based on an average for the preceding eleven years.

In addition to this showing on immigration, the announcement is now made at Washington that practically 100,000 of our men have perished in camps, overseas and in transportation. Another 100,000 of our French and Italian workmen have left and returned to their native land, the State Department having received applications for that number of passports for this class of people, who were anxious to seek new opportunities abroad. In the face of these facts, our American Congress now wants to shut off immigration from European countries for four years to come.

May I ask, here, what kind of labor supply will be available to the coal industry in this country if immigration is to be stopped for a time? It is a well-known fact that the American miner has become restive under existing conditions. Being without steady employment in the mines, many have sought other occupations and entered other industries, while a number have left the country seeking more favorable conditions.

It is my belief that we are face to face with one of the greatest labor problems in history. There will be an increasing demand for coal and a lack of labor to produce it. With this prospect in view, there will be few coal miners, indeed, who will be able to purchase the Fifth Liberty Bonds, unless there is a change in the working conditions at the mines. Our coal operators need to come into a closer relationship to organized labor. There is the need of sane and sound coöperation on the part of both operators and mine workers.

Waterman, Penn. JOHN MAJER

## Barometer vs. Outflow of Gas

*Letter No. 1*—The suggestion regarding the utilizing of mine gas, by burning it in the power-plant furnaces, and the resulting dangers to which attention has been drawn by W. D. Owens, who discussed the feasibility of the plan, *Coal Age*, Feb. 20, p. 372, raises the question of the effect of barometric changes on the outflow of gas in mines.

It is the contention of many able mining men that the gases found in mines are more sensitive to atmospheric changes than the barometer, which we understand is designed to indicate any change in atmospheric pressure as it occurs. It is claimed that, owing to the great sensitiveness of the gases accumulated in the mine workings and abandoned places, there is liable to take place a dangerous increase in the outflow of gas from these places, into the mine airways, before any reduction of pressure is indicated by the barometer.

Personally, I fail to see why a barometer when properly constructed should not adjust itself simultaneously with any change in the atmospheric pressure when that takes place. The fact that barometers are used as altitude indicators and will readily show a difference as low as five feet, with accuracy, is proof, to my mind, that they are very sensitive to the slightest change in the pressure of the air.

However, I would like to see an expression of opinion by other readers of *Coal Age*, as this is an important point in considering the possible dangers that may arise in connection with the proposed scheme of utilizing mine gas in the manner described. Mining men have been led to rely on the indications of the barometer and if I am not mistaken, it has been stated that these indications commonly precede the effect of atmospheric changes in the mine. E. P. BRENNAN.

Thomas, W. Va.

## Panel System of Mining

*Letter No. 1*—Referring to the inquiry of R. J. Pickett, *Coal Age*, Feb. 27, p. 419, in which he proposes a change in the panel system that is already in use in his mine, permit me to say that his proposed plan does not strike me favorably for several reasons.

In the first place, the concentration of the haulage system, in the old plan where rooms are driven to the right and left of each pair of butt entries, in my opinion, should more than equalize or counterbalance the back haul that he mentions, and which is necessary in the rooms driven toward the main heading.

Mr. Pickett's proposal is to drive one heading and an 18-ft. air-course, in place of the two butt headings of

the present plan, and turn rooms off of the entry only. His argument is that it will then be necessary to drive the cross-headings only 258 ft., instead of 442 ft., before he can turn another pair of butts and open rooms on those entries.

However, he must remember that, for the same tonnage, the time of development is rather in favor of the old plan, which gives twice the number of rooms for less than double the distance driven on the cross-entries. Again, there is a little more narrow work in his proposed plan, because he must drive 2 × 258, or 516 ft. of crossheadings, besides the necessary crosscuts in the new plan, as compared with 442 ft. of cross-entries and crosscuts in the old plan, in order to open practically the same number of rooms.

There are, moreover, certain disadvantages in the proposed plan. For example, an 18-ft. air-course 1000 ft. long will be difficult to maintain and will require much timbering. Again, the work of drawing pillars will be in progress, at the faces of the rooms in a preceding panel, only 10 ft. away from the rib of the 18-ft. air-course. The falls in the pillar workings would be liable to break over the pillar separating the air-course from the faces of the old rooms.

Finally, the ventilation will be more broken up, in the new plan, and more difficult to maintain than by the old system. In case there is a grade requiring the installation of a room hoist, the system would be less efficient where the rooms are driven off a single entry only, than where rooms are driven to the right and left of both entries. J. B. B.

Colorado Springs, Colo.

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*Letter No. 2*—After a little study of the proposed change in his present plan of mining, described in the letter of R. J. Pickett, *Coal Age*, Feb. 27, p. 419, I must say that the proposition does not appeal to me as having any advantage that would warrant making the change suggested.

Mr. Pickett has not given many essential facts that bear on the question of mining coal, such as the direction and amount of dip of the seam; depth of cover; condition with respect to gas; and, finally, the reason why the panel system was adopted in working this seam, whether owing to the presence of gas or the liability to gob fires. In the absence of these data, it is only necessary to discuss the relative advantages and disadvantages of the old and new plan of working.

The disadvantages of the present method, as given by Mr. Pickett, are the back haul required in rooms driven toward the main headings; loss of much coal owing to bad roof conditions; poor ventilation and difficulty of maintaining good roads, owing to the drainage being poor in the rooms; and, lastly, the slow development of the mine under the present system.

Judging from the fact that the drainage in the rooms is poor, it may be assumed that these are driven practically on the strike of the seam. But this feature would still be true in the method that he has suggested as a means to avoid the back haul mentioned. There is, therefore, no advantage to be gained in respect to this item.

Again, I fail to see that the roof condition would be improved by the new plan of working. On the other hand, the driving of an 18-ft. air-course would argue against the plan. My advice is that, if the roof is bad, owing to the action of gas in the strata, or other conditions, he should study to overcome these difficulties by proper measures. A frail roof may require larger pillars and less width of opening. Excessive roof pressure, due to depth of cover, must be relieved by inducing falls in abandoned rooms and other waste places. No timber should be left standing in the gob. Avoid caving rooms when it would menace roads or air-courses.

In respect to ventilation, the new plan would require two splits of the air to ventilate the same number of rooms, where a single split only is required in the present system. Also, the ventilation of the mine would be more expensive, owing to the necessary construction of air bridges and extra stoppings, or because of an increased mine resistance if two panels are ventilated by a single current.

Speaking of loss of coal, it is important to observe that, in the new plan, there would be a larger percentage of coal in entry pillars, which I fear would increase this loss when working under the proposed change. While it is true that the plan may appear to offer a slight advantage at the start, because of the necessity of driving a shorter distance on the panel entries, before turning another pair of butts, this advantage would only be temporary, since the old plan provides the driving of two rooms for each room now turned.

In fact, in the end, the driving of the same number of rooms would be delayed by the time required to drive the 75 or 80 ft. extra on the panel entries, while the driving of an 18-ft. air-course would prove an awkward drawback to the progress of the butt headings. My conclusion is that the development of the mine, in general, would be retarded by adopting the plan proposed.

The question of the extra expense of back haul in rooms going toward the main heading must be contrasted with the greater outlay, in the proposed plan, for extra yardage, including the driving of crosscuts, labor and material for building extra stoppings, and the laying of two extra switches for the same room development, besides building extra partings or side tracks.

In conclusion, let me say that I would favor making no change, but improving the present plan of working, by adopting such measures as may be required to overcome the difficulties mentioned. My claim is that there is a greater advantage in the concentration of the work, in the old system, than would be possible if this change was to be made.

While it is true that concentration of work must not be carried to excess, it is likewise true that the hauling of coal from several partings widely separated may result in loss of time waiting for coal and require an increased length of haul in the end. W. H. LUXTON.

Linton, Ind.

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# Reducing Ventilation at Firing Time

*Letter No. 6*—Kindly permit me to say a few things concerning the question of reducing the ventilation in a mine, at firing time, to which reference has already been made by a few writers. An experience of 35 years as miner, fireboss and mine foreman leads me to believe that the practice of naming a particular time for the firing of shots is an extremely dangerous one.

My knowledge of ventilation, as far as gas and dust are concerned, has been gained while performing the duties of fireboss and mine foreman in some of the most dangerous mines in West Virginia. But it has

been my good fortune to have performed the duties of these two positions without the occurrence of a single accident.

Let me say then that, in a mine generating gas, the necessary thing to do is to employ a system of ventilation that will keep all working places, travelingways and haulage roads free from accumulations of gas and dust. In order to accomplish this, a sufficient amount of air must be kept in circulation and made to sweep not only the working faces but all void and abandoned places throughout the mine. By this means alone, can the mine be rendered safe and sanitary.

In my opinion, there never was any excuse for establishing a particular time for shooting, except where the ventilation of the workings is insufficient to keep them clear of the smoke and gases produced by the firing of occasional shots, from time to time. But such conditions only make the mine more dangerous and must be avoided.

Let me attempt to make my meaning more clear by supposing that we are operating a mine where 50 men are employed in blasting and loading coal, and the practice, in that mine, is to fire all shots at 12 o'clock noon. Is it hard to imagine what a dangerous condition must result from the smoke and gases liberated by the firing of, say 100 shots within a short period of time? No one can deny this danger, even if permissible powder is used, and the result would be much worse if black powder is employed. There would result, then, a condition of the mine air that would invite an explosion, and this would be greatly increased if firedamp was present in the mine.

### Advises Having No Set Time for Firing

My custom has always been to have no set time for firing. Our practice is that a man is free to fire a shot at any time of the day when he is ready and is in need of coal. In this system, shots are fired, from time to time, throughout the mine. This gives the air current the advantage, because the smoke and gases produced by each blast are carried away as quickly as they are produced, and there is no large volume of smoke and gas contaminating the air. I am alluding here to mines where open lights are in use.

In mines where safety lamps are used, only permissible powders should be employed in blasting and no shot must be fired until the place has been carefully examined for gas and found to be safe. Every hole must be examined before it is charged and no shot permitted to be fired on the solid.

From my viewpoint there is much less danger, however, where gas is present, than exists in the presence of much dust. The gas is easier to handle and less destructive should an explosion occur. I believe that most everyone will agree with me that dust explosions seldom, if ever, occur in the summer time, while gas explosions occur throughout the year. The question arises, Can we create summer conditions in the winter time, in coal mines? This is a question worthy of careful consideration.

Allow me to pause here long enough to emphasize the fact that I am not in sympathy with the management of mines where explosions occur owing to the accumulation of gas in the workings. Such conditions can only result from the wilful neglect of duty, on the part of the mine officials in charge. The duty of every fireboss and foreman is to see to it that the mine in their charge is free from gas and ventilated in a manner that there is no danger of such accumulations taking place.

Dust must be kept down and not permitted to accumulate at the working face or on the roadways. This, however, is more difficult to accomplish in winter than in summer because the dry air circulating throughout the mine in the winter time dries out the workings, rendering them dutsy, in many portions where it is impossible to maintain a sprinkling system. The best thing to thoroughly saturate the dust in a mine, to my knowledge, is exhaust steam and this should be used until the desired effect is produced.

Morgantown, W. Va. ARTHUR STURM.

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*Letter No. 7*—I have read carefully and with much interest the opinions expressed by different writers, as derived from their practice, in regard to reducing the ventilation in a mine at the time of shotfiring. I also followed the discussion of this question that appeared in *Coal Age* some time ago, but the result has not been to change my opinion in this regard.

Where the ventilation of a mine is by means of an exhaust fan, I can understand that there may be some reason for the suggestion of reducing the quantity of air in circulation, when firing shots. In that case, the mine is ventilated under a pressure below that of the atmosphere and the effect of reducing the ventilation would be to increase the mine pressure slightly.

Now, assuming that there is a considerable volume of gas accumulated in the old rooms and abandoned places, a slight increase of the mine pressure, due to the slowing down of the fan, would have a tendency to drive back the gases into the places where they are accumulated, and there would be less danger of their coming in contact with the work of blasting.

### Observes Barometer and Water Gage

It has been my duty to oversee the firing of shots in a very gassy mine where gas was accumulated in abandoned places and much gas was also bleeding from the coal and freshly exposed strata. In the performance of my duties, having secured my lamp at the lamp cabin, I would proceed to read and make note of both the barometer and the water gage.

It was always my custom to observe whether the barometer was rising or falling. If the water gage was somewhat below the normal, which was generally caused by a low steam pressure, I would send word to the boiler room and have the fireman get up more steam, so as to increase the speed of the fan.

On going down into the mine and looking over the firebosses' reports, I would be able to judge, from those reports and from the information previously obtained, whether or not it was safe for them to proceed to fire the shots. On the other hand, if the shotfirers reported poor ventilation in the mine, owing to a reduced circulation of air, I would consider such a condition as unfavorable for shotfiring.

The result of many years' study and practice in mine gases and ventilation has been to convince me that better ventilation is needed at the time of firing shots more than at any other time. Owing to the expense of ventilating mines, it is a common custom among mining men not to produce a greater circulation of air than is necessary to accomplish the desired result. It is poor economy, however, to reduce the circulation and take a chance on the safety of a mine.

Linton, Ind. SHOT INSPECTOR.

# INQUIRIES OF GENERAL INTEREST

EDITED BY JAMES T. BEARD

## Enlarging an Airway

Kindly explain what increase in circulation should take place in the following instance: An airway, 3 x 3 ft. in section, is 1050 ft. long. At present, this airway is passing 2000 cu.ft. of air per minute, which is not sufficient for the proper ventilation of the mine, and it is desired to enlarge the airway so that its cross-section will be 6 x 6 feet.

The work was started at each end and continued until there remained but 50 ft. of the original 3 x 3-ft. airway. Assuming the power on the air remains unchanged, how much will the circulation be increased, at this stage of the work? STUDENT.

Denbo, Penn.

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As described, the airway is now divided into three sections, the two end sections being each 6 x 6 ft., 500 ft. long, and the middle section 3 x 3 ft., 50 ft. long. First, write the formula expressing the quantity of air circulated by a given power, which is,

$$u = \frac{ksQ^3}{a^3} = k\left(\frac{Q}{X}\right)^3$$

In this formula, the potential factor ($X$) is evidently the ratio of the sectional area ($a$) to the cube root of the rubbing surface ($s$); and it appears that, for any given power on the air, the quantity in circulation varies direct as this potential factor.

In this case, it is necessary to find the value of the reciprocal of the cube of the potential factor $X$, for each section of the airway, which is expressed thus:

$$\frac{1}{X^3} = \frac{s}{a^3}$$

The rubbing surface of the original airway is 1050 $(4 \times 3) = 12{,}600$ sq.ft. The two end sections of this enlarged airway being alike, their potentials can be combined as that of a single airway having a rubbing surface $s = 2 \times 500(4 \times 6) = 24{,}000$ sq.ft., and a sectional area $6 \times 6 = 36$ sq.ft. The rubbing surface of the middle section is $50(4 \times 3) = 600$ sq.ft., and the sectional area $3 \times 3 = 9$ sq.ft. The corresponding potential values of these sections are, therefore,

$$\text{Original airway,} \quad \frac{1}{X^3_0} = \frac{12{,}600}{9^3} = 17.284$$

$$\left.\begin{aligned} \text{Two end sections,} \quad & \frac{1}{X^3_1} = \frac{24{,}000}{36^3} = 0.514 \\ \text{Middle sections,} \quad & \frac{1}{X^3_2} = \frac{600}{9^3} = 0.823 \end{aligned}\right\} = 1.337$$

Now, since the power producing the circulation in each case is the same, we can write

$$Q^3_0\left(\frac{1}{X^3_0}\right) = Q_x{}^3\left(\frac{1}{X^3_1} + \frac{1}{X^3_2}\right)$$

Finally, substituting the potential values in this formula and solving with respect to $Q_x$, we find, for the increased circulation in the enlarged airway,

$$Q_x = 2000\sqrt[3]{\frac{17.284}{1.337}} = \text{say, } 4700 \textit{ cu.ft. per min.}$$

We recall that this problem was answered, some years ago, in *Coal Age*, by request of a correspondent.

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## Prime Producer in a Coal Mine

The question is frequently asked, Who is the prime producer in a coal mine? I have listened to so many discussions of this question when the contestants did not seem to get anywhere that I decided, at last, to send it in to *Coal Age*, hoping that something worth while would develop.

My understanding is that the words "prime producer" are intended to refer to the actual producer in the operation of a coal mine. Taking the industry as a whole, is he the loader, the cutter, the driver, dayman, fireboss, foreman, superintendent, manager or operator? In other words, passing down the entire line of operatives, who can be singled out as the main spoke in the wheel?

If I may be permitted to express an opinion, it is that the actua' producer is the loader who sends out his eight to twelve cars of coal each shift. But there is plenty of room for discussion here and I shall be glad to see the question argued to a finish. J. W. H.

Grant Town, W. Va

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In the view of many, this is a story without an end; and it is not strange that a discussion of this nature often proves inconclusive. The operation of extracting coal from the earth and putting it on the market consists of a round of duties and performances that are interdependent. The question of which is the most important is like asking, Which spoke of a wheel performs the greater service? It is true the wheel may lose one or more of its spokes and still serve to carry the load, by increasing the burden on the remaining spokes. In the same manner, one or more of the operatives in a coal concern can be away from his post and the work still goes on.

Particular emphasis, however, may be placed on the word "producer," which means, in reference to a person, one who produces. To *produce* is to bring forth, the root meaning being *to lead out*. In that sense, the word has particular reference to the creation of value. The farmer *produces* crops by tilling the land; the miner *produces* coal by digging it from the earth. The musician *produces* harmony with his instrument.

In each several case, there is something created that is of value and which, but for the performer, would have no value. In this derivative sense, the man who digs the coal from the bowels of the earth is the real producer; because, by his labor, he has changed the potential value of the coal to an actual value that pays him for his labor. In other words, he has created value.

It will be remarked, doubtless, that the coal in place has a market value and can be sold and bought, which is true. But such value is purely speculative, until labor has made the coal of use in the world. *Coal Age* will be glad to have other views on this question.

# EXAMINATION QUESTIONS

EDITED BY JAMES T. BEARD

## Mine Examiners' Examination, Springfield, Ill., Dec. 17, 1918

*(Selected Questions)*

*Ques.*—It was found that smoke traveled in an airway 6 ft. high and 10 ft. wide, at the rate of 336 ft. per min.; what quantity of air is passing in a minute?

*Ans.*—The sectional area of this airway is $6 \times 10 = 60$ sq.ft. Then, assuming that the distance the smoke travels in a minute is the average velocity of the air, the quantity of air in circulation is $60 \times 336 = 20{,}160$ cu.ft. per minute.

*Ques.*—In a mine we are producing 40,000 cu.ft. of air per minute with 20 hp.; how many horsepower will it take to produce 50,000 cu.ft. of air per minute?

*Ans.*—For the same conditions in the mine airways, the power required to produce the circulation varies as the cube of the quantity of air produced; in other words, the power ratio is equal to the cube of the quantity ratio. Hence, calling the required horsepower, in this case, $x$, we have

$$\frac{x}{20} = \left(\frac{50{,}000}{40{,}000}\right)^3 = \left(\frac{5}{4}\right)^3 = \frac{125}{64}$$

$$x = \frac{20 \times 125}{64} = 39+ \ hp.$$

*Ques.*—How does the change of atmospheric pressure affect a gaseous mine?

*Ans.*—Any *decrease* in atmospheric pressure is accompanied at once by an expansion of the air and gases confined in the abandoned workings and other void places in the mine. The action is contrary to what would take place under an *increase* of atmospheric pressure, which would compress the air and gases. A decrease of atmospheric pressure is indicated by a fall of the barometer, which is a warning of possible increase in the gaseous condition of the mine airways, which every mine foreman and fireboss should heed.

*Ques.*—What are carbon monoxide and carbon dioxide? Give their chemical symbols.

*Ans.*—Carbon monoxide (CO) is an extremely piosonous gas, the molecule of this gas consisting of one atom of carbon combined with one atom or oxygen. The gas is formed by the oxidation of carbon in the presence of a limited supply of air.

Carbon dioxide, while not being poisonous in the same sense as carbon monoxide, still produces a toxic effect on the human system. The molecule of carbon dioxide consists of one atom of carbon combined with two atoms of oxygen. This gas is produced by the complete combustion of carbon or carbonaceous matter in the presence of a plentiful supply of air. Carbon dioxide is always present to a greater or less extent in the blackdamp found in mines. The gas will not support life or combustion and is not, like carbon monoxide, inflammable.

*Ques.*—If a water gage placed in a door 4 ft. 6 in. high and 5 ft. wide shows a reading of 2.7 in. what is the total pressure on the door?

*Ans.*—Since 1 in. of water gage corresponds to a pressure of 5.2 lb. per sq.ft., a 2.7-in. water gage indicates a pressure of $2.7 \times 5.2 = 14.04$ lb. per sq.ft. The area of a door $4\frac{1}{2}$ ft. high and 5 ft. wide is $4\frac{1}{2} \times 5 = 22.5$ sq.ft. The total pressure on this door is, therefore, $22.5 \times 14.04 = 315.9$ lb.

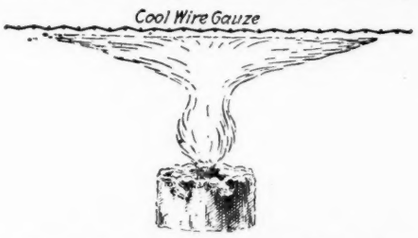
*Ques.*—If 20,000 cu.ft. of air and gas, at its most explosive point, is passing through the mine, what is the quantity of gas given off, and what quantity of air should be added to render it nonexplosive?

*Ans.*—Assuming the question refers to a mixture of pure methane and air at its most explosive point, the percentage of gas in this current is 9.46 per cent. The quantity of gas given off in this mine is, therefore, $20{,}000 \times 0.0946 = 1892$ cu.ft. per min.

Assuming that the lower explosive limit of methane and air is reached when the proportion of gas to air is 1:13; or, in other words, the gas forms 1/14 of the entire mixture, the total quantity of air and gas, in this case, when the mixture has reached the lower explosive limit, is $14 \times 1892 = 26{,}488$ cu.ft. per min. On this basis, the quantity of air required to be added to render this air nonexplosive is $26{,}488 - 20{,}000 = 6488$ cu.ft. of air per minute.

*Ques.*—Explain the principle discovered by Davy and embodied in the safety lamp. What is the standard size wire gauze used in the Davy lamp?

*Ans.*—Sir Humphrey Davy (1815) discovered the important fact that when a wire gauze mesh, containing a certain number of a given size of wires to the inch, was depressed on a lamp flame the flame spread out




SHOWING EFFECT OF WIRE GAUZE ON FLAME

beneath the gauze, as shown in the accompanying figure. It was only when the gauze became heated that the flame passed through its mesh to the other side. This peculiar effect is explained by the fact that the burning air and gas, in attempting to pass through the mesh of the gauze, is broken up into a number of tiny streamlets, which are cooled below the point of ignition of the gas when coming into close proximity to the cool wire of the gauze. The flame is thus extinguished while the air and gas pass through the mesh. The wires cool the flame and prevent it from passing through the gauze.

By experimenting with different sized wires, Davy found that the best results were obtained by the use of a steel wire No. 28 B.w.g., made into a mesh of 28 wires to the inch. This was adopted as the standard wire gauze for safety lamps, and is still in use in England and this country. The gauze mesh has 784 openings to the square inch.

# BOOK REVIEWS

## Economic Production, Transmission and Use of Compressed Air

COMPRESSED AIR PLANT. The Production, Transmission and Use of Compressed Air with Special Reference to Mine Service. By Robert Peale, mining engineer and professor of mining, School of Mines, Columbia University. Third Edition. Pp. xx + 466 + 19 index; 5¾ x 9¼ in.; 246 illustrations. John Wiley and Sons, Inc., 432 Fourth Avenue, New York City, publishers. Cloth boards. Price $4.25.

This volume, prepared as it is by Robert Peale, needs no recommendation. It is preëminently a practical volume and full of illustrations that really illustrate. When a book of 466 "working" pages contains 246 illustrations, the reader needs some such assurance. We give it most cordially. The pictures are not put in because Mr. Peale had them on hand, nor because Professor Peale sought to ingratiate himself with others by using them, but because they are needed and explain the text. Let us qualify that last statement. Some of the illustrations are in themselves the text.

Professor Peale does not waste time explaining the obvious, like some writers who refuse to leave the readers any other labor than that of fathoming their utterly incoherent English. Two pages give all the history and reminiscences. The "Structure and Operation of Compressors" fills 40 pages. The mathematics of compression follow in the next 26 pages. Mr. Peale shows a remarkable restraint for a college professor. What is more, this is all the mathematics in the book.

The author abruptly leaves the subject for "Wet Compressors" and "Dry Compressors," and for "Compound or Stage Compression." Then follows the important subject of valves, self-acting air-inlet valves, discharge and delivery valves and those valves that are mechanically controlled. Performances of air compressors follow and then the accessories are discussed—air receivers, steam and pressure regulators. Then follows a chapter on "Air Compression at Altitudes Above Sea Level" and one on "Explosions in Compressors and Receivers."

The author advocates oil of extremely high flash-point. One recent authority believes that in an excess of refinement an oil of too high a flash-point is often used. He is of opinion that such an oil is apt to carbonize and fill ports, valves, discharge lines and the receiver. Still there is no doubt that the flash-point should be higher than any temperature the compressed-air cylinder is liable to reach with such attention as is given it, and probably Professor Poole would be satisfied to indorse a ruling on flash-point couched in such terms as these.

"Air Compression by Falling Water" finishes Part I, the second part having to do, not with the production of compressed air, but with its transmission and use. The book divides itself about equally between the manufacture and the use of compressed air. The first chapter in Part II is on the "Conveyance of Compressed Air in Pipes." Then follows "Compressed Air Engines," including hoists, and, a most important subject, "Freezing of Moisture."

The author cites the use at the Butte copper mines of several discarded return tubular boilers as receivers, the purpose being not so much to provide storage as to cool and deposit the moisture in the compressed air by the large surface exposed, thus preventing the freezing of moisture when the air is expanded in use. He suggests that boilers sunk in water would in warm weather and in warm climates give similar satisfactory results. Ten pages are given to the reheating of compressed air. All kinds of compressed-air mining machinery are then described — reciprocating drills, hammer drills, coal-cutting machines (29 pages), channeling machines, mine pumps, air-lift pumps and locomotives.

## Oxyacetylene Blowpipe Repairs Machinery Permanently and on the Spot

OXWELDING AND CUTTING, Manual of Instruction. Pp. 124 + 2 index; 5 x 8 in., illustrated. Oxweld Acetylene Co., 646 Frelinghuysen Ave., Newark, N. J., publishers. Paper boards.

This is a really adequate, practical and simple description of the art of oxyacetylene welding. It is not in popular form, but neither is it abstruse. Its language is simple and its presentation convincing. The veriest novice can understand it. So great is its clarity that one cannot conceive that a really technical man wrote it. It seems more likely that it was written by some one who did not know the art of welding as well as he did the art of writing, but who was so hedged about by competent welders that his task was made easy and his information accurate and abundant.

The work of welding takes some judgment and skill. It does not merely consist of joining pieces of metal with the molten material of the filling rod. There is much more in autogenous welding than in mere soldering, for the temperatures are so high that expansion, contraction and conduction all have their influences. There is often a risk of the contraction causing a break. In butt welding plates judgment must always be used in laying the edges of metal which are to be joined together at such an angle that on welding they will by reason of the warping which results from the heat attain a certain lay with regard to each other by the time the blowpipe reaches any given point. There are also difficulties from the oxidizing of the metal and from the absorption of gases. The edges should be so beveled, grooved or otherwise disposed as to favor a satisfactory weld. The speed of welding is also a contributory factor. In butt-welding plates, when the edges of the plates tend to come together too fast and to crowd and overlap, the welding should be speeded up to overcome that difficulty.

The little volume starts out with a glossary of such words as are used in the book and not described in the text. A few notes on autogenous welding in general are followed by a short history of the oxyacetylene process. Acetylene was discovered in 1836, but no one produced it by methods adapted to commercial needs till 1891 and 1892, when Wilson in America and Moissan in France found means to make it at reasonable cost. It was not until 1901 that it was used with oxygen for metallic welding. In 1903 oxyacetylene welding was first used industrially, but until 1907 little was done to advance the method because oxygen was not a real industrial product. In 1907 the first liquid-air oxygen plant was placed in operation and from that time onward oxyacetylene welding was assured of success.

After detailing the work for which the oxyacetylene blowpipe is suitable, the author enters into the properties of metals from which trouble arises or assistance comes—the melting points, expansion and contraction, conductivity, oxidation, absorption of gases, vaporization and separation of elements. The methods and advantages of preheating and the provisions against expansion and contraction are then treated. Preparation of the material to be welded, the character of the flame (whether reducing or neutral or oxidizing) and the manipulation of the blowpipe follow. There are sections on aftertreatment and the causes of poor welds, and notes on the work with steel, cast iron, malleable iron, aluminum and copper.

Steel cutting is dispatched in short order, as is also the matter of acetylene generators. Thereafter the book becomes even more practical. The blowpipe is described and its manner of operation, and solutions are given of 60 practical problems with corrollaries, these covering both welding and cutting.

# FOREIGN MARKETS AND EXPORT NEWS

EDITED BY ALEX MOSS

## German Coal in Alsace-Lorraine

Alsace depends for its coal supply mainly upon the Ruhr and Saar coal fields, and to a secondary extent on Belgium and England. The relative part played by the various coal fields has varied considerably from year to year. Up to 1910 the Saar occupied first place, but has been passed by the Ruhr, says Circular No. 5399, Comitè Central des Houillières de France.

The total imports of coal immediately before the war amounted in round figures to 2,500,000 tons per annum, of which 1,300,000 tons came from the Ruhr district, 1,000,000 tons from the Saar, 170,000 tons from Belgium and 20,000 tons from England. Supplies from the Ruhr are conveyed almost exclusively by water, about 1,000,000 tons (including 70,000 tons of brown coal) being imported into Strasburg. On the other hand, the greater part of the imports from the Saar were rail-borne. The bulk of the coal delivered was consumed locally, but a considerable tonnage was passed on by water or rail to Lorraine, the neighboring departments of France, and Switzerland. In addition, 500,000 tons of coal from the Saar were conveyed over the Marne-Rhine canal system to the east of France. Inclusion of this tonnage raises the total quantities of coal entering Alsace from Germany to over 3,000,000 tons per annum.

#### Metallurgical Industries Used Imported Coal

Almost the entire import of fuel into Lorraine was utilized in the metallurgical industries. In 1912 the province received by rail 3,170,000 tons from the Ruhr coal field, of which no less than 3,060,000 tons were coke. There were consumed, in addition, 2,170,000 tons from the Saar (including the mines of Lorraine and the Palatinate), of which only 320,000 tons were coke. Lorraine also received 100,000 tons of coke from France and 330,000 tons of Belgian coke. The consumption of Ruhr coke in Lorraine rose by over 1,000,000 tons in the interval between 1909 and 1912; in particular, the deliveries from the right bank of the Rhine advanced from 1,900,000 tons to 2,900,000 tons. At the same time, the imports of Belgian coke showed a substantial increase in the same period, rising from 177,000 tons to 440,000 tons.

This was the position prior to the war, and it cannot be expected to change materially under present conditions, as the shortage of fuel will persist, and the productive capacity of the French coal fields is expected to fall short of the consumption by some 24,000,000 tons. The Saar collieries produced before the war about 12,000,000 tons, and during the war this fell to 5,000,000 tons. In peace time the Government collieries in this district found a market for 5,000,000 tons, or 70 per cent. of their output, in Prussia and Southern Germany; 1,500,000 tons, or 12 per cent., in Alsace-Lorraine; 1,000,000 tons, or 8 per cent., in France; the remainder being sent to Switzerland, Italy and Belgium. The net result is that, in the acquisition of these mines, France, under normal conditions, gains 8,000,000 tons, or, adding the private mines in Lorraine, 9,000,000 tons; but, in the years immediately following the war, the additional tonnage of coal secured for our allies will not exceed 5,000,000 or 6,000,000 tons, and, consequently, will not be sufficient to make good the deficit of the French collieries.

Furthermore, the Saar mines produce very little coking coals, the coke yielded being of inferior quality. In 1912 the state collieries produced only about 1,600,000 tons of coke, and the private mines about 200,000 tons at the most from a total output of 3,500,000 tons of coal. It was this deficiency that led to enlarged imports of coke from the Ruhr coal field before the war. As it is anticipated that the metallurgical industries in Lorraine will show progressive development, it is essential that Germany should be made to supply large quantities of coke or coking coal, as in the past, and the bulk of this will have to be delivered, via Strasburg, by water.

The proposal is now made that these supplies should be sent in the shape of coking coal, so as to avoid breakage of coke in transshipment at Strasburg and to enable France to recover the byproducts of which she stands so greatly in need. The total requirements are placed at 3,500,000 tons, of which 1,300,000 tons at least would be sent via Strasburg; but it is hoped that this total may be gradually increased.

So long as this town remained in German hands, the distribution of coal for local requirements, amounting to about 600 tons per diem, was exclusively in the hands of the "Kohlenkontor" (the Rhenische Kohlenhandels - und - Rhedereigesellschaft), the sales branch of the Rhenish-Westphalian Syndicate, with headquarters at Mannheim, and a branch office at Strasburg, lately transferred to Kehl, with agencies at Colmar and Mulhouse. The Kohlenkontor dealt direct with large consumers or dealers, but possessed no storage depot at Strasburg, nor any barges on the Rhine, hiring the necessary craft and delivering direct to customers. The State mines in the Saar also dealt direct with large consumers under contract. As regards the private mines, Messrs. de Wendel, before the war, maintained a sales department for their products at Strasburg, the Houve Mines had their business headquarters there, and the Stinnes and Holstenbach Collieries were represented by the Strasburger Kohlenaufbereitungsansalt und Rœchling.

If the Saar mines become the property of France, the headquarters will probably be retained at Saarbrucken under Government control, but it will be necessary, as regards the deliveries from the Ruhr, to establish some organization to take the place of the Kohlenkontor, and to supervise the distribution of coal throughout the provinces of Alsace-Lorraine; the present situation demands that measures to this end should be taken without delay.

## Opportunity for American Coal in Canary Islands

Consul George K. Stiles, Teneriffe, is authority for the statement that there seems to be a splendid opportunity for the introduction of American bunker coal on a large scale in two of the more important coaling stations in the South Atlantic—namely, Teneriffe and Las Palmas, Canary Islands. There is no bunker coal on hand, with the exception of a few hundred tons of low-grade Spanish coal reserved for the use of Spanish mail boats between the peninsula and the archipelago. The efforts of the Canary Islands companies, all controlled from London, to obtain British coal have so far resulted in failure on account of the insufficiency of the British supply for home uses.

There is no doubt whatsoever that there is a market for large quantities of American bunker coal as the temporary supply until the mining industry of England has regained more nearly its normal conditions. These islands would undoubtedly absorb a hundred thousand tons of American coal in 1919 for bunker purposes. The temporary opportunity is one that needs no special emphasis. Offers by the local firms at this time for bunker coal c. i. f. Teneriffe are understood to be as high as $35 or $45 per ton, the latter being for steamer delivery. To secure a permanent hold on this trade, valued at $6,000,000 to $10,000,000 a year, would require, however, unusual efforts, as it is dominated by the South Atlantic coaling combine.

The firms in the Canaries are simply departments of London firms, which are the mine owners or are closely affiliated with mine owners. It would seem necessary, then, for American firms to secure concessions and to form a similar trade combination as the already existing British one before the American product would be able to make any showing in that market, even though it could be landed there more cheaply than the British-produced article.

Santa Cruz de Teneriffe and Las Palmas, Grand Canary, are both deep-water ports, ranging from 20 fathoms up. Cargoes range from 2000 to 7000 tons, and other than full cargoes are rarely received there, except a few shipments of gas coal for the use of the Teneriffe and Las Palmas gas companies, which occasionally buy small lots. Anthracite is also occasionally purchased, but the trade is comparatively unimportant, being estimated at less than 5 per cent. of the entire traffic. Coke is practically never imported.

The usual manner of unloading cargoes is to have the coal shoveled into sacks weighing about 200 lb. each. This is transferred to lighters by the derricks of the collier at the rate of five sacks to each shift of the derrick, or approximately one-half ton to each movement of the crane. The ordinary rate of unloading equals 250 tons per day, but as high as 600 tons have been unloaded. This could be doubled by night shifts, if exporters desired to economize the time of the collier's charter. The usual charter calls for unloading at the expense of the consignee.

All coal in Teneriffe and Las Palmas is unloaded into lighters, and exporters should therefore base their prices on contracts requiring merely the delivery of cargoes alongside lighters. The coaling firms all maintain large forces of men to unload and handle their purchases, and a section of the port is occupied by scores of lighters for this service.

The amount in storage at the depots on the shore at Teneriffe approximates normally between 60,000 and 70,000 tons, and practically the same amount is possessed by the coaling firms at Las Palmas.

## Spanish Coal Imports

The following tabulation shows the quantity in metric tons (2204.6 lb.) and the value of coal and coke imports into Spain during 1916 and 1917:

| | 1916 | | 1917 | |
|---|---|---|---|---|
| | Tons | Value | Tons | Value |
| Coal | 2,017,243 | $9,440,497 | 1,094,806 | $5,119,431 |
| Coke and briquets | 134,047 | 876,896 | 73,362 | 462,181 |

The lessened importation during 1917 was the natural outcome of the abnormal trade conditions caused by the war. In 1916 the United States exported coal to Spain to a value of $227,611. Great Britain,

## Hampton Roads Coal Exports

NORFOLK

| | | | Cargo | Bunkers |
|---|---|---|---|---|
| **Lamberts Point** | | | | |
| Mar. 18 | Jap. S.S. Penang Maru | San Diego, Cal. | 6,289 | 1,002 |
| Mar. 19 | Nor. Bk. Sydnaes | Rio de Janeiro, Brazil | 2,953 | .... |
| Mar. 20 | Ital. S.S. Colombo | Gibraltar FO (Italy) | 4,949 | 572 |
| **Sewalls Point** | | | | |
| Mar. 18 | Amer. S.S. Chiababos | Pernambuco, Brazil | 2,515 | 729 |
| Mar. 21 | Amer. S.S. Mojave | Rio de Janeiro, Brazil | 2,404 | 967 |
| **Newport News** | | | | |
| Mar. 15 | Amer. S.S. Watauga | Humacao, Porto Rico | 1,481 | 414 |
| Mar. 15 | Amer. S.S. Choctaw | Lake Penitenco, Demerara | 1,939 | 604 |
| Mar. 15 | Amer. S.S. Stephen R. Jones | Rio de Janeiro, Brazil | 5,638 | 1,325 |
| Mar. 19 | Amer. S.S. Lake Fondulac | Antilla, Cuba | 3,144 | 320 |
| Mar. 19 | Amer. S.S. Kennebec | Havana, Cuba | 3,032 | 309 |
| Mar. 19 | Nor. Bk. Hippen | Rio de Janeiro, Brazil | 1,256 | .... |
| Mar. 20 | Amer. S.S. Lake Galera | Fort de France, Martinique | 3,135 | 379 |
| Mar. 20 | Amer. S.S. Cristobal | Cristobal, C. Z. | 9,184 | 1,662 |
| Mar. 22 | Nor. S.S. Eika III | Nuevitas, Cuba | 1,541 | 225 |

as was to be expected, topped the list with coal exports to Spain during 1916 to a value of $9,209,395. France came last, with coal to a value of $5694.

Spain has been forced to rely in large measure on domestic fuel, therefore coal mining has been encouraged in every way possible, with the result that 5,973,300 metric tons of coal of all kinds were mined in 1917, an increase of 1,125,825 tons over the official figures given for 1916. In 1917 the production of soft coal amounted to 5,025,600 tons, lignite to 636,800 tons and anthracite to 310,900 tons.

In many cases the production was checked by the impossibility of transportation, owing to lack of coal cars on the railroads. It is said that near many of the mines there were thousands of tons of coal ready for sale, but that there were no means by which it could be carried away. Mining was paralyzed in some parts also on account of insufficient space in which to store coal.

The progress in Spanish coal mining is indeed all that could be expected, but the supply does not yet meet the industrial demands of the country. It is natural that the increase should continue unless labor should fail, because the mining companies are now supplied with machinery. To encourage mining throughout Spain, the government authorized an organization called the National Council of Coal Miners, the principal objects of which are to group small concessions, investigate new fields, secure mining machinery, build railroads, depots and freight yards, and by concerted action increase the production of coal. Syndicates of mining companies are formed in different localities having the right to representation in the national council based on the quantity of coal produced. The government grants this organization aid by constructing such railroads as may be necessary for the development of coal fields and by advancing funds in the form of loans to groups of mine owners.

## Foreign Freight Rates

W. W. Battie & Co.'s coal trade freight report under date of Mar. 24:

As the Chartering Committee will not allow American shippers to charter neutral steamers to carry coal from the United States to ports in Brazil and the River Plata (which boats are consequently chartering from Cardiff to these destinations), and as the Shipping Board is not able to supply enough steamers for these voyages for American shippers' requirements, we suggest to our various shippers that they charter sailing vessels for these voyages.

We have recently chartered a number of sailing vessels for this business and have a few other boats available.

We also have sailing vessels that will entertain coals to outside French ports at $30 per ton net form of charter, and to Marseilles or Genoa at $32.50 net form of charter.

The Shipping Board informs us that the Norwegian-American Sailing Vessel Agreement has terminated, and consequently these vessels are no longer under control of the U. S. Shipping Board or the British Ministry of Shipping.

The Chartering Committee's rates are as quoted below:

**Steam**—Havana, $7.50, 600 tons dis.; Cardenas or Sagua, $9, 300 tons dis; Cienfuegos, $9, 500 tons dis.; Caibarien, $9.50, 300 tons dis.; Guantanamo, $8.50, 500 tons dis.; $9, 400 tons dis.; Manzanillo, $9.50, 300 tons dis.; Bermuda, $9.50, and Bermuda, p. c. and dis. free, 300 tons dis.; Kingston, $9.50, 400 tons dis.; St. Thomas, $10, 500 tons dis.; St. Lucia, $11, 500 tons dis.; Santiago, $8.50, 500 tons dis.; $9, 400 tons dis.; Barbados, $11, 500 tons dis.; Port of Spain, Trinidad, $11, 500 tons dis.; Curacao, $10.50, free p. c. Curacao, 500 tons discharge. Rio, $19.50 net, 1000 tons dis.; Santos, $19.50 net, 1000 tons dis., or $21 net, 600 tons dis.; Buenos Aires, $18.50 net, 600 tons dis.; Montevideo, $19.50 net, 750 tons dis.; Pernambuco, $18.50 net, 500 tons dis. To Nitrate Range, $16.50 gross prepaid.

**Sail (maximum)**—Para, $15.50 net; Bahia, $18.50 net; Pernambuco, $18.50 net; Rio, $19.50 net; Santos, $19.50 net; Rio Grande do Sul, $21.50 net, 400 tons dis.; Buenos Aires, $18.50 net; La Plata, $18.50 net; Montevideo, $19.50 net. To Nitrate Range, $16.50 gross prepaid.

A cablegram from American Minister Stimson at Buenos Aires, dated Mar. 17, states that he had been informed that the labor unions had consented to return to work under the terms of the decree of the government and that the unloading of vessels in the port would be commenced immediately.

## Shanghai Coal Market

Under date of Feb. 12 Wheelock & Co. report that the market for Japanese coal has been practically closed owing to the Chinese New Year holidays, and that it is unlikely there will be much business of any account for some time to come. Native dealers do not seem to be in any hurry to resume work, most of the trades being slack and money very tight.

In Japan the coal market continues firm. All government contracts, such as those for the navy, army, railways, etc., are now being considered—the Japanese fiscal year commencing Apr. 1—and mine owners are being hard put to it to meet the requirements as the demand greatly exceeds the supply.

There is no change in the Fushun coal situation, and no prospects of any coal for export in any quantity before the end of March. Also due to the Chinese holidays there has been little activity in the Kaiping coal market.

## Retail Prices of Coal in Wales

Under the Household Fuel and Lighting Order, 1918, the local fuel overseer has fixed the price of household coal delivered in the residential district of Swansea (Sketty and Mumbles) at the following prices per long and short ton:

| Quality | Price per Long Ton | Price per Short Ton |
|---|---|---|
| Best quality: | | |
| Large and cobbles | $12.41 | $11.08 |
| Second quality: | | |
| Large and cobbles | 11.68 | 10.43 |
| Third quality: | | |
| Large and cobbles | 11.07 | 9.88 |
| Anthracite: | | |
| French nuts and cobbles | 13.99 | 12.49 |
| Colliery screened cobbles | 14.11 | 12.60 |
| Large | 14.11 | 12.60 |
| Patent fuel: | | |
| Briquets | 10.83 | 9.67 |
| Ovoids | 13.38 | 11.95 |

It should be noted that the price of the best quality of anthracite coal delivered inside the residence at Swansea is fixed at $12.60 per ton of 2000 lb. This is an extremely high price when it is considered that Swansea is the centre of the anthracite coal districts of the United Kingdom, the mines being located in some cases within five miles of Swansea.

## Italy Demands German Coal

Information comes from official sources that Italy intends to alleviate the extremely acute coal famine from which she has been suffering by demanding coal supplies from Germany by way of indemnity. Unless fuel can be procured in large quantities the national industries of Italy will be paralyzed. British exports of coal are insufficient to meet the demands, while exports from France have ceased entirely.

The Italian Government had hoped that American coal would help solve the fuel problem, but sea-going freight rates make American coal delivered at Genoa dearer than the British, which is selling at about $40 a ton. The lack of bottoms further complicates the situation. Negotiations with American coal exporters have been suspended until the question of obtaining German coal as indemnity is examined.

## Miscellaneous Notes

American coal exporters are determined to make a strong effort to retain a big slice of the European coal trade. Orders are reported to have been booked in Sweden, Holland and Italy at low prices.

The London coal market still suffers keenly from short supplies. Many depots are closing their gates early in the day, and the overhanging cloud of labor trouble, with stocks so low, has thrown the market into grave anxiety. The seaborne quantity is improving.

The announcement that the Mexican Government intends to place a heavy duty on imports of coke has caused considerable uneasiness among Mexican importers of the product. They claim that Mexican coke is of an inferior quality and that an import duty on foreign coke would make production costs in the majority of industries prohibitive.

## Coal and Coke Exports from the United States in January, 1919

| Customs Districts and Countries | Anthracite Coal, Tons | Bituminous Coal, Tons | Coke, Tons |
|---|---|---|---|
| Maine: | | | |
| Canada | 279 | 1,072 | 70 |
| Vermont: | | | |
| Canada | 1,793 | 5,642 | 67 |
| Massachusetts: | | | |
| Canada | 26 | ..... | ..... |
| Newfoundland and Labrador | 115 | ..... | ..... |
| St. Lawrence: | | | |
| Canada | 136,005 | 257,678 | 1,515 |
| Rochester: | | | |
| Canada | 2,876 | 53,654 | 1,405 |
| Buffalo: | | | |
| Canada | 212,905 | 230,746 | 16,449 |
| New York: | | | |
| Italy | ..... | 1,349 | ..... |
| Canada | 8,375 | 524 | ..... |
| Salvador | ..... | ..... | 3 |
| Mexico | ..... | 32 | 2 |
| Newfoundland and Labrador | 87 | ..... | ..... |
| Cuba | ..... | ..... | 15 |
| Danish West Indies | ..... | 508 | ..... |
| French West Indies | ..... | ..... | 6 |
| Dominican Republic | 1,905 | ..... | ..... |
| Argentina | ..... | 700 | ..... |
| Ecuador | ..... | ..... | 14 |
| Paraguay | ..... | ..... | 4 |
| Peru | ..... | 55 | 55 |
| Venezuela | ..... | ..... | 471 |
| Philadelphia: | | | |
| Netherlands | ..... | 11,995 | ..... |
| Newfoundland and Labrador | ..... | 609 | ..... |
| Cuba | 4,101 | ..... | ..... |
| Dutch Guiana | ..... | 1,001 | ..... |
| Uruguay | ..... | 1,785 | ..... |
| Maryland: | | | |
| Netherlands | ..... | 15,543 | ..... |
| Cuba | ..... | 4,280 | ..... |
| Argentina | ..... | 4,663 | ..... |
| Chile | ..... | ..... | 831 |
| Peru | ..... | 3,617 | ..... |
| Uruguay | ..... | 4,212 | ..... |
| Venezuela | ..... | ..... | 1,047 |
| Virginia: | | | |
| France | ..... | 936 | ..... |
| Italy | ..... | 9,954 | ..... |
| Netherlands | ..... | 10,904 | ..... |
| Canada | ..... | 2,756 | ..... |
| Panama | ..... | 6,135 | ..... |
| Barbados | ..... | 2,575 | ..... |
| Jamaica | ..... | 2,521 | ..... |
| Trinidad and Tobago | ..... | 1,363 | ..... |
| Other British West Indies | ..... | 3,994 | ..... |
| Cuba | ..... | 94,553 | 3,802 |
| Danish West Indies | ..... | 1,512 | ..... |
| French West Indies | ..... | 592 | ..... |
| Dominican Republic | ..... | 3,295 | ..... |
| Argentina | ..... | 36,005 | ..... |
| Brazil | ..... | 55,546 | ..... |
| Chile | ..... | 26,861 | ..... |
| Peru | ..... | 5,992 | ..... |
| Uruguay | ..... | 67,705 | ..... |
| Canary Islands | ..... | 17,768 | ..... |
| Portuguese Africa | ..... | 22,255 | ..... |
| Georgia: | | | |
| Argentina | ..... | 2,116 | ..... |
| Florida: | | | |
| Cuba | ..... | 1,950 | ..... |
| Mobile: | | | |
| British Honduras | ..... | 100 | ..... |
| Cuba | ..... | 1,806 | ..... |
| New Orleans: | | | |
| British Honduras | ..... | ..... | 3 |
| Gautemala | ..... | 3 | 3 |
| Honduras | ..... | 254 | 2 |
| Nicaragua | ..... | 157 | ..... |
| Mexico | ..... | ..... | 45 |
| Cuba | ..... | 1,050 | ..... |
| San Antonio: | | | |
| Mexico | 114 | 2,680 | 3,007 |
| El Paso: | | | |
| Mexico | 159 | 3,666 | 3,122 |
| Arizona: | | | |
| Mexico | ..... | 3,452 | 16,632 |
| Southern California: | | | |
| Mexico | ..... | 15 | ..... |
| San Francisco: | | | |
| Salvador | ..... | ..... | 12 |
| Oregon: | | | |
| France | ..... | 800 | ..... |
| Washington: | | | |
| Canada | ..... | 1,404 | 90 |
| Dakota: | | | |
| Canada | ..... | 714 | 90 |
| Duluth: | | | |
| Canada | ..... | 1,360 | 26 |
| Michigan: | | | |
| Canada | 9 | 123,492 | 12,995 |
| Ohio: | | | |
| Canada | ..... | 89,728 | 5,740 |
| Porto Rico: | | | |
| Dominican Republic | ..... | ..... | 3 |
| Total | 366,749 | 1,207,634 | 67,526 |

# COAL AND COKE NEWS

EDITED BY ALEX MOSS

## Harrisburg, Penn.

A state tax of 1 per cent. on the value of the coal mined and prepared for market in Pennsylvania would be established for state purposes only, under the terms of a bill introduced in the House on Mar. 25 by Mr. North of Chester.

The bill would affect both hard and soft coal. The bill is similar to former laws, which it would repeal, and requires production reports to be made to the Auditor General.

It was learned on Mar. 26, that before the Davis Mine Cave Bill is reported out, if this action is taken, the word "coal" will be taken out and "anthracite" substituted. Members of the mines committee from the bituminous region, among whom are Senator W. E. Crow, interested in a number of soft coal operations, have insisted on this amendment, it is said. As the measure reads now, the entire coal industry of the state, anthracite and bituminous, is affected by its provisions. The bill is a drastic one and was drawn up principally to remedy conditions as they exist in Lackawanna County, and for this reason the soft-coal interests have announced their objections to the inclusion of the bituminous industry in the bill.

While drafts of the proposed amendments of the Workmen's Compensation Act are before the Governor and Attorney General for their final determination, and are subject to change, it is understood that the state administration is favorable to the contentions of the coal miners and other organized labor that there should be an increase in the rate of compensation and a change in the "waiting period" from fifteen to seven days. The miners urge 70 per cent. compensation against 50 per cent. of the weekly wage, as at present. Capitol gossip is that the new bill will be either 60 or 65 per cent. Compensation, however, is not to exceed $13 a week, an advance of $3. It is understood that conferences have been had with labor leaders and that while some want to put in their own bill, others are disposed to accept what Chairman Harry A. Mackey has drawn up for the consideration of the Governor.

One of the changes under discussion is the schedule of payments for mutilation and disfigurements, for which the miners have strongly contended. A bill already in provides for medical attention for 30 days instead of 15, and this is also said to be favored by compensation officials. Wider powers for the State Board to fix rates are understood to be included, although there is a difference of opinion on this point.

Leading anthracite coal operators have made overtures to Governor Sproul to submit their books, reports and other data, which, they declare, will show that the proposed increases in the price of coal to take place on May 1 are justified. It is learned that the coal operators favor a "friendly" investigation and that they are doing everything possible to prevent a legislative investigation. It is believed that nothing will be done toward pushing a resolution through the Legislature until after the operators have been given a reasonable time to discuss the situation among themselves and also with the Governor.

## Uniontown, Penn.

"Hold wages up and production down," may be defined as the general policy of independent (or merchant) operations of the Connellsville region, expressed and approved at a conference of operators here which marked the first meeting of the Coke Producers' Association since before the war. That agency, long inactive, is to be called back to life to direct the coke industry through the crucial days ahead in the stabilization of the industry.

Various operators at the conference were emphatic in approving a decision not to disturb the wage scale so long as the cost of living remains at its present level. To attain that end, it was held the coke market must at least be kept firm; and to keep an active demand for Connellsville coke there seems to be no limit to the lengths to which the operators will go. With an average price now of $4.50, ovens, many operators dealing in prompt delivery frankly asserted their intention of suspending operations if the spot market went below that price.

That the turning point in this region is now near, and that it actually has been passed in the country at large, was the assertion of W. L. Byers, production manager for the fuel administration during the war. Quoting Washington advices, Mr. Byers asserted that consumption of coal and coke in the country now exceeded production by 20 per cent., and that unless some move was soon made toward increasing output a marked scarcity would be found in the market for fall and winter buying. Speaking of his experience as a coal and coke broker, Mr. Byers said that the situation was now being appreciated by buyers and that inquiries had made an encouraging increase during the past week.

A warning was given the operators not to expect too much business from the Great Lakes trade now opening up, by Fred P. Truesdale, former division freight agent for the Pennsylvania R. R. Mr. Truesdale said that a mild winter had left consumers with stock piles which must be reduced before the demand becomes active from that source.

## Charleston, W. Va.

Insofar as it is possible to determine, taking West Virginia as a whole, there was a slight gain in production during the week ending Mar. 22, the increase, such as it was, being due to larger shipments to the West. Even there, however, the demand is far from being sufficient to give much impetus to mining in those fields of West Virginia which depend on the West for their market. The fact that there is and has been less activity in the Western market than was expected is attributed by West Virginia operators to the prospects of a dull lake trade during the early part of the season. In fact, West Virginia producers are inclined to believe that it will be well onto a month before there is any appreciable carrying of coal on the lakes, owing to the fact that lake consumers have a surplus of about four million tons to draw upon.

Stock piles in Western markets are being somewhat diminished, but the process is so gradual that it does not require much to replenish them. Even those districts shipping to the East during the third week of the month for the most part were still looking to the West to supplement the demand and to make possible production on more than a 50 per cent. basis, because tidewater shipments were just about stationary, with no export business at all in sight. The only coal which was going to the West in any volume was lump and egg, and lack of equipment and storage facilities made it hard to mine that coal because of the necessity of taking out other coal at the same time. However, for the reason just stated, there was a better demand in the West. Navy consumption is helping to swell shipments from certain districts.

## DuQuoin, Ill.

The Kathleen mine, at Dowell, five miles south of Du Quoin, owned by the Union Colliery Co., of St. Louis, is fast nearing completion. The mine, which was started one year ago, will be the largest bituminous coal mine in existence, when completed. The property on which the mine was sunk lies on the main line of the Illinois Central Railroad Co., 1½ miles north of Elkville and five miles south of Du Quoin. This place, eighteen months ago, was a bare tract of land, but today is a thriving mining town of 500 to 600 population.

Over the main shaft of the mine, which is 28 x 19 ft. clear, is being built the largest steel tipple ever constructed, and at the air shaft, which is 33 x 10 ft. clear, a concrete tipple has been completed with a double-deck 50-man cage in operation. It is at this shaft that all the men and materials will be hoisted and lowered.

At the present time 900 to 1000 tons are being hoisted each day, but when in full operation it is expected that the plant will reach a tonnage of 6000 to 8000 daily. The power throughout the mine is electric, including all haulage, mining machines and hoisting, the method employed in hoisting the coal to the surface being by means of skip hoists holding 10 tons each. From 1000 to 1300 men will be employed in the mine when it is running full blast.

The Illinois Central Railroad Co. has announced the opening of its new five-stall roundhouse and machine shops, which it has completed at the north end of the city switchyards. This represents one of the biggest railroad improvements made in Du Quoin for years, and one which this city with its greatly increased freight and coal traffic sorely needed.

The United States Fuel Co. has completed 50 modern homes at Benton, east of here, to be used by the employees of the Middle Fork mine. On account of the scarcity of men last year the company purchased land just inside the city limits and erected houses.

The possibility of a coöperative store in this city is being discussed by the miners' unions, and the discussions have so far indicated it is likely the plan will go through. The stock of goods will be purchased through the East St. Louis offices of the Illinois Coöperative Store System, which has jurisdiction over the miners' store of Southern Illinois.

## New York, N. Y.

The ratification by the General Strike committee of the Marine Workers' Affiliation of the settlement made between the private boat owners and the members of the Tidewater Boatmen's Union obviates, at least for the present, all danger of a coal famine in the Metropolitan District. The striking harbor workers at the outset of the trouble, about five weeks ago, numbered nearly 16,000. Almost half of these returned to work when Government departments, including the Railroad Administration, granted the strikers' terms, and the remainder of the men have been holding out for their terms.

During the past week the situation became serious. Retail dealers were running short of coal, and it was said that some of the city institutions were also suffering from the lack of coal. Dr. Garfield, Federal Fuel Administrator, sent a telegram to Mayor Hylan in which he suggested to the Mayor the possibility of supplying facilities for the movement of coal so that the public service corporations would not suffer.

The offer of the private boat owners took with it an increase in salary of $20 a month over what the tidewater men received before the inauguration of the strike, making their pay $110 a month. There was no suggestion of a decrease in working hours. The Railroad Administration settled its differences with the tidewater men on the same salary terms, but granted a twelve-hour day and $1.50 per night for watchmen's duty on loaded barges. The tidewater men originally asked for $125 per month, with no provision for shorter hours.

Private boat owners, individually, believe the strike is won and do not expect any further trouble. By the end of the week they expect that most of the coal barges will be running and that there will need be no further fear of a coal shortage.

## Victoria, B. C.

The production of the collieries of Vancouver Island for the month of February totaled 145,750 tons in comparison with 158,327 tons for the month of January. It should be borne in mind, however, that February is the shorter month. Still this does not altogether account for the decline. Nanoose collieries, for instance, dropped to an output of 500 tons, which is explained by the interference with work caused by the construction of a wharf. While the generally changed conditions of the past six months have had no noticeable effect on the Island collieries as yet, the producing mines being operated steadily and in most cases to capacity with

results even better than when the war demand was at its height, there are slight indications that the urgency for output is not as great as it was. The work of opening up the Wakesiah Mine, which is situated near Nanaimo, B. C., and owned by the Canadian Western Fuel Co., has ceased temporarily, and a short time ago the coal miners of Nanaimo were off for a Saturday afternoon.

Both the Princeton Collieries and the Coalmont Collieries have increased their production in comparison with the results of January. In the case of Princeton the explanation of the improvement is that in the previous month a fire interfered with work.

As for the Crowsnest Pass coal field, there are no returns to hand as yet. The collieries, however, are authentically said to have operated only twelve days. A substantial reduction, therefore, is looked for. The reason for this slackness is found in the lack of demand in British Columbia for coke, following the closing down of the smelteries at Greenwood and at Anyox, particularly that of the Granby Consolidated Mining and Smelting Co. at the latter place, where a large quantity of the fuel is used when the plant is working to full capacity.

### PENNSYLVANIA

#### Anthracite

**Marysville**—The river coal trade along the Susquehanna in Perry County promises to be an important industry next summer, due to the high prices being paid for coal. All along the river men who have been in this trade in the past are calking their old barges and preparing for a big summer business.

**Hazleton**—At a meeting of the stockholders of the New York and Lehigh Coal Co. on Mar. 20, the corporation was dissolved. It was one of the oldest concerns in the anthracite field. All the mining rights have been sold to the Lehigh Valley Coal Co.

**Carbondale**—New York capitalists have purchased the Horseshoe Bluff of the old gravity railroad for $95,000 and will market the coal used in the filling of the bluff many years ago. Also, the Lackawanna Coal Co., Ltd., has purchased from the Jordan McNally Co. the Northeast Colliery. This plant contains about 2,000,000 tons of coal.

**Plymouth**—The Hudson Coal Co. has under erection at this place the largest capacity breaker building in the anthracite field. It will be up to date in every way. It is the first breaker building to be covered, both roof and sides, with protected metal. The development and operation of this breaker will be followed with interest, as the plant establishes a precedent in the field due to the features embodied in its construction.

#### Bituminous

**Pittsburgh**—The Roberts & Schaefer Co., of Chicago, has been awarded a contract for the installation of shaker loading booms at each of the Primrose and Armeid tipples of the Carnegie Coal Co.

**Brownsville**—The Snowdon Coke Co., operating near Brownsville, on the Pennsylvania R. R., is putting 50 ovens out of blast. This will leave 160 ovens in blast and permit the mine to operate about three-fourths time with the present working force.

**Braznell**—The Pittsburgh Steel Co., which has taken over the coal and coke operations of W. Harry Brown in Fayette and Green Counties, is preparing to speed up these operations. Of a total of 400 ovens, 200 are now in operation; 185 more will be fired up, 15 being kept out for repairs which will be pushed as rapidly as possible.

### WEST VIRGINIA

**Beckley**—A property loss of about $10,000, fully covered by insurance, was sustained by the Tolbert Smokeless Coal Co., recently, when the building which housed its store and office was burned to the ground, the fire spreading so rapidly before being discovered as to make it impossible to save the structure.

**Mt. Hope**—The plant of the Mt. Hope Coal and Coke Co. is a total loss as the result of a fire which not only destroyed the tipple and other mining buildings but also the company's ice plant, the loss being about $30,000, nearly half covered by insurance. Mine cars and other equipment were also destroyed in the fire. The plant had not been in operation recently, but the company's ice plant did furnish ice for local consumption, and had just placed an order for new machinery. The Mt. Hope company belonged to W. E. Deegans and his associates. It will hardly be rebuilt.

**Williamson**—A coal deal of considerable magnitude has been closed in Mingo County, in which the change in ownership of 1500 acres of coal land is involved, the price being in the neighborhood of $150,000, it is said. The purchasers are M. H. Pedigo, of Bluefield, and his associates, the coal property acquired from E. E. Music being on Pigeon Creek. Col. William Leckie, of the Pocahontas field, is one of those associated with Mr. Pedigo in the Pigeon Creek deal. It is the expectation of the purchasers, so far as plans have been made, to develop the territory whenever general conditions seem favorable. The United Thackers interests only a few years ago acquired a large acreage from Mr. Music, who has now disposed of all his coal holdings.

### KENTUCKY

**Madisonville**—The St. Bernard Mining Co. is making rapid progress on its new power plant, which will furnish power and light to a number of mines and towns. Poles and wires are up to some of the mines, the transmission lines having been completed to the Fox Run mine at St. Charles and the Diamond mine at Morton's Gap.

### OHIO

**Carrington**—The Sunday Creek Coal Co. of Columbus, recently reorganized, is going ahead with its improvements and betterments, on its properties in the Hocking Valley field. A new tipple is being constructed at Mine No. 90 at this place, and preparations have been made to build new tipples at Mine No. 19, Buckingham, and Mine No. 10, at Glouster. All the tipples are of steel construction. Shaker screens and other modern equipment will be installed.

### INDIANA

**Bridgeton**—The recent heavy rains have caused a serious cave-in at No. 6 Zellar-McClellan coal mine, damaged the pump, placed the hoisting machine out of commission and caused a shut-down of the mine. Repair work is being pushed but it will be two weeks before the mine can be operated again. The cave-in happened when only one man was in the mine, and fortunately he escaped by way of the manhole. The mine is located southeast of Bridgeton.

**Brazil**—Officials of the Pennsylvania R.R. announced that beginning Monday, Mar. 31, after the clocks are advanced one hour, the Seelyville and Glen Ayr miners' train would be run one hour later. The miners' train now leaves Harmony at 5:40 in the morning and Brazil at 5:50, but beginning on Mar. 31 the train will leave Harmony at 6:40 and Brazil at 6:55 o'clock. The miners objected to arising an hour earlier, and district officials took the matter up with the railroad company which agreed to run the train an hour later. The return trip in the evening will also be made an hour later.

### ILLINOIS

**Litchfield**—The Chicago, Burlington & Quincy R.R. has opened a new coal mine at Vallier, south of Litchfield, and is building the foundation for a town which is expected to grow rapidly. The Burlington is building a double track between Reno and Durley.

**Peoria**—The Crescent Coal Mining Co., operator of large mining interests south of Peoria, has secured the mineral rights to 160 acres of land in Hollis township, a few miles from the city of Peoria. The land is owned by Emil and Margaretha Stoll, the company paying $5000 for the right to mine the coal beneath the land.

**Hillsboro**—A syndicate which is reported to be backed by Gary, Ind., interests, has been obtaining options on a large body of coal lands between Hillsboro and Walshville. It is understood that the plan is to obtain options on at least 35,000 acres running southwest from Hillsboro to the vicinity of Walshville. The options run six years.

**Carlinville**—Another large coal field, embracing some 1500 acres, located in Macoupin County, has been sold. This field lies between Bunker Hill and Shipman, and as many of the other fields in this country, its sale was promoted by A. W. Crawford, of Hillsboro. Mr. Crawford secured the options on this field recently and drills have been testing the quality and quantity of coal. It is considered that this new field will not be extensively worked for at least two years.

### TEXAS

**Rockdale**—The Federal Fuel Co. has been organized for the purpose of developing a large tract of lignite lands near Rockdale, Texas, in Cameron County. Organizers of the company are Henry G. Butler, of Hillsboro, Tex., vice-president and general manager; W. A. Butler, also of Hillsboro, and William Butler, of San Marcos. Offices of the company are maintained at 1003 Scanlon Building, Houston, Tex. The company owns 1400 acres of lignite lands southwest of Rockdale, which is underlaid with more than twenty million tons of lignite, according to estimates prepared by engineers. Much of this lignite lies sufficiently close to the surface that it can be mined by steam shovels in stripping operation. The company will build seven miles of its own track from the International and Great Northern, which will traverse the 1400 acre tract. It is planned to have the mine in operation by Aug. 1, with a daily output of 1000 tons.

### MONTANA

**Musselshell**—On Mar. 17 the Star coal mine filed with the county clerk at Roundup a certificate authorizing the increase of its capital stock from $150,000 to $200,000. The company contemplates extensive improvements to its mine here. The operation has been producing coal for several years.

**Roundup**—If William Degan of this city is able to carry out his plan the old Keene coal property, a few miles west of here, will again be operated. The mine has been idle since it was abandoned four years ago by Nelson Brothers. There are a number of judgments against the property, and Mr. Degan hopes to be able to operate on a royalty basis, paying the creditors a certain sum for each ton of coal mined. The creditors are said to be in favor of the plan.

## Foreign News

**London, England**—The sum of £15,000 is being devoted by the British Government toward the cost of experimental borings in the County Tyrone coal field, which has the town of Coalisland for its chief center. The borings are being made in the vicinity of Lough Neagh, under which coal is supposed to lie. The experimental borings are being carried out under the advice of experts from the English coal fields, under the supervision of Sir Lionel Phillips.

**Calgary, Alberta**—At the annual convention of the British Columbia Federation of Labor held here recently, resolutions were passed asking the British Columbia Government to order inquiries into the coal mine accidents of 1916 at Coal Creek and 1918 at Nanaimo, which resulted in the deaths of 48 miners. The convention was assured that the Provincial Government was prepared to proceed with any further investigation that might be considered necessary.

**Ottawa, Ont.**—C. A. Magrath, Fuel Controller for Canada, announces that the fuel situation has now cleared up to such an extent that the organization in Ottawa will terminate its activities at the end of the present month. Ample supplies of coal are now available for both domestic and industrial purposes, production for all classes of coal having overtaken the demand. The coal regulations will probably be allowed to remain in force until the actual declaration of peace, although importers and dealers will not be required to take out new licenses for the coming coal year. The Controller stated that this would be his last official statement to the press and desired to emphasize the desirability of everyone taking in coal supplies who could afford to do so in the near future. There was a disposition to hold back in the anticipation that prices will come down. While he was unable to make any positive statement as to prices, the tendency so far as anthracite is concerned seemed to be in the other direction. One or two of the large United States coal companies have announced that the usual opening reduction will not be made, and that prices will advance at the rate of 10c. per ton each month for five months during the summer.

## Personals

**J. B. Marks** has been appointed to the position of purchasing agent of the Colorado Fuel and Iron Co., of Denver, Colo., vice **S. G. Pierson**, elected treasurer.

**R. L. Baker**, formerly connected with the Railway and Mine Supply Co., is now the

Chicago sales representative of the Muskegon Boiler Works, of Muskegon, Mich.

**George T. McCarty,** of Pittsburgh, Penn., has resigned as manager of western sales of the United Coal Corporation, effective Apr. 1, and will engage in the coal brokerage business in Pittsburgh.

**C. G. Knisley,** who has been secretary and general manager of the Reeves Coal Co., New Philadelphia, Ohio, for the past nine years, has resigned his position to assume his duties as vice president and secretary of the Midvale Coal Company.

**William Lahm** has resigned his position as superintendent of the Ellsworth Collieries Co., Ellsworth, Penn., to become general superintendent of the Washington Coal and Coke Co., with headquarters at Star Junction, Penn., effective Mar. 15.

**H. G. Lewis,** sales manager of the Electric Service Supplies Co., Philadelphia, Penn., has recently been made vice president. Mr. Lewis is well known in the eletcric railway, mining and power fields. He will continue his work as vice president and sales manager.

**John Hanwell,** of Bismarck, N. D., has been appointed state mine inspector, in pursuance of a new law enacted by the recently adjourned session of the legislature of the State of North Dakota. The duties of mine inspector were formerly covered by Jay W. Bliss, state engineer.

**C. E. Hague,** formerly production engineer of the Mid-West Engine Co., Indianapolis, Ind., has been appointed sales manager of the American Steam Conveyor Corporation, Chicago, manufacturers of the American steam ash conveyor and other ash-handling equipment. Mr. Hague assumed his duties Mar. 17.

**Thomas Haulton,** well known mechanical and electrical engineer, has opened an office in Johnstown, Penn., as a consulting engineer, specializing on mining equipment. An interesting feature in connection with a service for coal operators that Mr. Haulton is going to inaugurate is an arrangement whereby Mr. Haulton, in return for a reasonable stipulated monthly fee, will be available to mine managements at all times for information and advice. Mr. Haulton's long and varied experience with all classes of mining equipment in this and foreign countries, especially fit him for this service.

**E. E. Back,** formerly sociological director of the Ellsworth Collieries Co. and recently Chief of the Americanization Bureau of the Council of National Defense, has accepted a similar position for the State of Pennsylvania under Governor Sproul. His work will relate not only to the teaching of English to aliens and their acquirement of American citizenship, but also to health, safety and other welfare. Inquiries and suggestions relative to this work will be welcomed by Mr. Bach, whose address will be the 7th floor, Finance Building, Philadelphia, Penn. He will be assisted by a body of experts in all lines to be covered.

## Obituary

**George H. Lacey,** general superintendent of the LaSalle Mining Co., LaSalle, Ill., for a number of years, died at the age of 86 years at Southern Pines, N. C. He was formerly mayor of LaSalle, Illinois.

**Whiteman E. Smith,** aged 39, president of the Smith-Gardner Coal Co., died in Cincinnati, Ohio, recently from pneumonia. He was the grandson of the late Richard Smith, who was editor of the Cincinnati "Commercial Gazette" for many years.

## Coming Meetings

**American Society of Civil Engineers** will hold its forty-ninth annual convention in St. Paul and Minneapolis, Minn., June 17 to 20. Secretary, C. W. Hunt, 33 West 39th St., New York City.

**Illinois Mining Institute** will hold its annual meeting May 22, 23 and 24. Secretary, Martin Bolt, Springfield, Ill.

**National Coal Association** will meet May 21, 22 and 23, at Congress Hotel, Chicago, Ill. Secretary, J. D. A. Morrow, Washington, D. C.

**International Railway Fuel Association** will hold its annual meeting May 19-22 at the Hotel Sherman, Chicago, Ill. Secretary, J. G. Crawford, Chicago, Ill.

**Indiana Retail Coal Merchants' Association** will hold its annual spring meeting Apr. 23 and 24 at Indianapolis, Ind. Secretary, R. R. Yeagley, Indianapolis, Ind.

**National Foreign Trade Council** will hold its sixth convention at the Congress Hotel, Chicago, Ill., April 24-26. Secretary, O. K. Davis, 1 Hanover Square, New York City.

## Industrial News

**Canton, Ohio**—The George A. Williams Coal Co. has been incorporated with a capital of $20,000 by George A. Williams, Charles C. Upham, Nelle M. Meysr, W. G. Brossman and J. G. Kramer.

**Louisville, Ky.**—The Gordon-Miller Coal and Coke Co., Louisville, has filed amended articles of incorporation, increasing the capital stock from $80,000 to $250,000. The company has mines in eastern Kentucky and offices in the Lincoln Bank Building, Louisville.

**Dalton, Ga.**—The Jacobs-Glaser Mining Co., which recently filed notice with the Secretary of State of a change in its corporate name to the Coosawattee Coal and Mining Co., has increased its capitalization from $200,000 to $500,000, to be used, it is understood, to provide for expansion.

**New York, N. Y.**—A. H. Smith, Regional Director of Railroads, Eastern Territory, shows in his report for January and February that compared with the same months in 1918, bituminous coal loading decreased 43 per cent.; and that anthracite coal loading for January decreased 2 per cent. and in February 30 per cent.

**Huntington, W. Va.**—D. E. Hewitt & Co. of this city have acquired 1500 acres of coal land from the Berger estate near Kermit, W. Va., and plan development when the time seems ripe to expend about $150,000 in installing a plant for the mining and shipment of coal. Associated with D. E. Hewitt are Arch Hewitt and R. A. Thomas.

**Charleston, W. Va.**—Capitalized at $150,000, the Nelson Coal and Oil Co. has been organized, the company being incorporated by Charleston citizens. It is the intention of the organizers to do a general mining business. Chiefly interested in the formation of the company were J. M. Clark, E. M. Johnson, G. R. Krebs, C. W. Morton and C. E. Krebs.

**Columbus, Ohio**—George A. Borden, president of the Columbus Board of Purchase, will open bids Apr. 7 for the purchase of 1400 tons of either nut, pea and slack or mine-run for the garbage and refuse plant; 2000 tons of nut, pea and slack for the waterworks department; and 3500 tons of Hocking nut, pea and slack for the municipal light plant.

**Pittsburgh, Penn.**—The Epping-Carpenter Pump Co. announces the appointment of F. S. Healey as manager of sales in addition to his former office of chief engineer, vice E. F. Woods, who is now located in New York as eastern sales manager. Albert A. Scheuch, of the sales department, has been appointed as assistant sales manager, and Paul D. Goodman, formerly of the McClary Jemison Machinery Co., of Birmingham, Ala., has been added to the sales personnel.

**Duluth, Minn.**—The Clarkson Coal and Dock Co. has arranged to make improvements at its dock this season that will result in doubling its handling capacity and entail an expenditure of $125,000. Work will probably be started by May 1, and it is expected that the new equipment will be ready for operation by July 1. When completed the dock will have a loading capacity of 150 cars daily. The contract for the installation has been let to the Mead-Morrison Manufacturing Company.

**New York, N. Y.**—Through the Bureau of Foreign and Domestic Commerce, we are in receipt of information about foreign trade opportunity number 28,705. W. H. Lane, 101 Queen St., Melbourne, Australia, wishes to secure agencies for mining machinery, high speed engines, boilers, electrical generators, electrical and mechanical equipment of all kinds for timber and mining enterprises. References: J. C. Haskins & Co., Sidney, N. S. W.; Dalgety & Co., Melbourne; and The National Bank of Australia, Melbourne.

**New York, N. Y.**—The committee appointed to revise the rules of the Tidewater Coal Exchange and to establish a new system of classifications met in Philadelphia Mar. 28 and completed its report, which was sent to J. W. Howe, Commissioner of the Exchange at Washington. A copy of the report will be sent to the secretary of each coal merchants' association for consideration of its members. It is understood that various changes have been recommended in the rules and that the committee recommends that the coals in the pools be classified according to analysis.

**Washington, D. C.**—The Government plans to sell at prevailing market prices the surplus stock of 80 lb. rail and 25 lb. rail ordered for the American Expeditionary Forces overseas, but not required due to the signing of the armistice. There are about 50,000 tons of 80 lb. rail and about 7000 tons of 25 lb. rail. There are large quantities of crossings, slip switches and turnouts. Most of this material is at port readily accessible for loading. All sales are being conducted through the office of the Director General of Military Railways, Washington, D. C., where further information can be obtained.

**Birmingham, Ala.**—A committee of Alabama coal men, headed by S. L. Kerkes, of the Grider Sales Co., and W. C. Adams, of Adams, Rowe & Norman, Inc., appeared before the officials of the railroad administration in Washington recently seeking the establishment of a joint rail and water rate from points in the Warrior coal fields to Mobile and New Orleans. The naming of such rates is essential to the proper utilization of the facilities of water transportation on the Warrior, which the Government has made available by the expenditure of vast sums on locks and dams, and to the development of the bunker and export trade which should be supplied from this field.

**Columbus, Ohio**—Coal-carrying railroads that were permitted to charge $1 per ton for transporting coal from Nelsonville to Toledo after the state public utilities commission in 1911 had reduced the rate to 85c. must refund the entire amount of overcharge and are not limited to liability only of $25,000, the amount of the bond required, according to a recent decision of the Ohio Supreme Court. The cases decided were those brought by the New Pittsburgh Coal Co. and the Big Four Coal Co. against the Hocking Valley Railway Co. The common pleas courts of both Lucas and Franklin Counties had held in favor of the railroads, but the Appellate Court reversed the lower tribunals and held in favor of the coal companies. Many other suits are pending.

**Kansas City, Mo.**—The board of directors of the Chamber of Commerce has declined to give approval of a request which Kansas coal operators will make before the Interstate Commerce Commission for a 10c. increase in freight rates on coal from the Illinois coal fields. The Kansas operators presented their side of the case, while industrial companies of Kansas City opposed the change. Representatives of local industrial concerns pointed out the present advantage of 60c. the Kansas operators have in freight rates, stating a further advantage would be prohibitive to Illinois coal producers. The failure of Kansas operators to supply local demands was noted by the industrial representatives, who declared the increase of Illinois freight rate, by excluding Illinois coal, would create a serious shortage here.

**Indianapolis, Ind.**—Alfred M. Ogle is president of the Ogle Coal Co., which has recently been incorporated. The new company will take over the selling agency of the Vandalia Co., which will be operated only as a producing company. The Ogle Coal Co. will also handle the sales of the Atlas Coal Co. and the Vigo Mining Co. The offices of the company will be in the suite in the Fletcher Trust Co. building, Indianapolis, which has been occupied by the Vandalia Co. Mr. Ogle was an assistant to Dr. H. A. Garfield, Federal Fuel Administrator, and had charge of distribution of coal in Indiana. He is widely known in Indiana coal and mining circles and with the passing of the war period wishes to head his own company. Bernard R. Batty is vice president of the company and W. C. Kaiser is secretary.

**Louisville, Ky.**—The Louisville coal trade is aroused over an announcement of the City Administration of Licenses that the trade is to be taxed, the city alleging that such action is necessary to make up for the loss of revenue when the saloons close. Every branch of the coal trade is taxed, and all promotors are taxed. Extra taxes are arranged for each branch yard, and special taxes for each team or truck. The ordinance as written would also impose special licenses on concerns on the basis of the number of men employed. The coal schedule imposes a license of $100 for each yard, and a scale of payments based on annual business, calling for $7.50 for a $3000 business, and $45 for a business of $15,000 or over in gross sales. The ordinance as written would prove a great hardship on some of the larger concerns which have numerous yards, trucks and employees.

# MARKET DEPARTMENT

EDITED BY ALEX MOSS

## *Weekly Review*

### *Coal Market Shows Signs of Improvement—Considerable Contract Inquiry—Labor Troubles at Mines—Railroad Fuel Controversy Still Unsettled—New England Overstocked—Soft Coal Consumption Exceeds Production—Anthracite Situation Better*

BOTH pessimist and optimist can find enough in the present condition of the coal market to bolster up their respective views. A careful analysis, however, would indicate that the optimist has a shade the better right to his belief. Market conditions are a trifle more favorable than they have been, though the demand for coal continues to be extremely dull.

Consumers of bituminous coal are evidencing considerable interest in contracts to cover their requirements for the new coal year, but the majority of the large producers are not at all eager to sign up for this business. The labor situation in most of the important soft coal mining regions is anything but satisfactory, though labor leaders are understood to be assiduous in pointing out to their men that decreased production is essential to the maintenance of prices, and in turn of wages.

All indications at this time point to labor troubles at the mines when the peace treaty is signed, and if these eventuate in any of the fields it will have a tendency to raise the prices of coal in those producing districts that are not affected. Consumers who are not protected by contract will be compelled to meet this advance in price if they wish to obtain coal.

The question of what price the railroads are to pay for their coal is still unsettled. It is believed, however, that a definite understanding will be reached by the end of April. The railroads consume more coal than any other industry, and once the existing controversy between the operators and the railroad officials is eliminated, it will give a feeling of confidence to the entire coal industry. Another reassuring sign pointed out by the optimist is that general manufacturing and industrial conditions appear to be more stabilized. Plants that were practically at a standstill two or three weeks ago are now fairly active.

Not to crowd the pessimist entirely out of the discussion, we will permit him to point out that the New England fuel situation is not favorable to the bituminous coal operator. Stocks in that territory are not being depleted as fast as was expected. The textile manufacturers are apparently no nearer a solution of their labor difficulties, and several large mills are still closed down. Many mill owners, the gloomy prognosticator has discovered, have been obliged to refuse their February and March coal quotas on contracts now expiring. Another factor that disturbs the pessimist is the extent to which fuel oil is making inroads on steam coal in the New England states. In one case, he emphasizes, the change to oil has reduced the coal consumption nearly 50,000 tons.

Conditions in the coal-producing regions of the Middle West are improving. According to reports from Minnesota, Iowa, Wisconsin, Illinois and Michigan, soft coal is being bought in more liberal quantities than heretofore.

Consumption of bituminous coal now exceeds production by 20 per cent. Unless sufficient demand sets in to stimulate output, a marked scarcity will be manifest in soft coal next fall and winter. The many inquiries regarding contracts would lead one to believe that consumers are now sensing the true situation.

The anthracite industry is in good shape, all things being considered. Demand has improved, and this has been reflected in increased working time at the mines. There is no great surplus of the steam sizes of anthracite; and as with bituminous coal, unless production increases considerably from week to week, there is likely to be a shortage. This can be obviated if consumers order their coal early and get it into their bins during the summer months. Household consumers will doubtless put in their orders during the month of April, for an increase in price of 10c. a ton goes into effect on May 1.

### WEEKLY COAL PRODUCTION

The loss of time on St. Patrick's Day, Mar. 17, brought about a 7 per cent. decrease in the output of bituminous coal during the week ended Mar. 22, compared with the week ended Mar. 15. The production during the current week is estimated at 7,477,000 net tons as compared with 8,042,000 net tons during the week of Mar. 15 and 11,121,000 net tons during the corresponding week of last year. The daily average per working day is estimated at 1,246,000 net tons and is considerably behind the daily average per working day during the present coal year to date, estimated at 1,795,000 net tons, and last year estimated at 1,762,000 net tons. The total production from Apr. 1, 1918, to date is estimated at 549,126,000 net tons as against 539,127,000 net tons during the preceding year.

The production of anthracite in the United States during the week ended Mar. 22 is estimated at 1,171,000 net tons, as against 1,206,000 net tons during the week ended Mar. 15 and 2,099,000 net tons during the corresponding week of 1918. The daily average per working day during the current week is estimated at 195,000 net tons, as compared with 296,000 net tons for the coal year to date, and 319,000 net tons for the same period last year. The production from Apr. 1, 1918, to date is estimated at 90,488,000 net tons and is 6,981,000 net tons behind the production of the 1918 coal year.

Tidewater shipments to New England, during the week under review are estimated at 93,376 net tons and exceed the tonnage loaded during the week preceding by 13.4 per cent. Considerable improvement occurred during the week in tonnage loaded at New York and Philadelphia, while the tonnage loaded at Hampton Roads decreased slightly. The rail shipments to New England were not reported.

The shipments of bituminous coal from the tidewater harbors to all points during the week ended Mar. 22 are estimated at 362,865 net tons and are in excess of shipments during the week ended Mar. 15 by 12.4 per cent. Tonnage loaded at New York and Philadelphia during the week ended Mar. 22 amounted to 155,111 net tons, as against 113,056 net tons during the week ended Mar. 15. The tonnage loaded at Hampton Roads was also in excess of that reported during the week of Mar. 15, while a slight decrease occurred in the tonnage loaded at Baltimore.

The production of beehive coke in the United States during the week ended Mar. 22 is estimated at 404,242 net tons as compared with 429,446 net tons during the week ending Mar. 15 and 623,927 net tons during the corresponding week of 1918. Production in Virginia, Kentucky, Washington and Utah was slightly in excess of that reported for the week preceding, while in other states production was somewhat lower than the output during the week of Mar. 15. The daily average per working day during the week ended Mar. 22 is estimated at 67,370 net tons, as against 70,175 net tons for the calendar year to date and 81,162 net tons for the same period of 1918. Total production of beehive coke for the period Jan. 1 to date is estimated at 5,614,012 net tons and is considerably below the production during the same period of 1918, when the output was estimated at 6,493,029 net tons.

### BUSINESS OPINIONS

**Dry Goods Economist**—The general condition of trade in retail dry goods and department stores throughout the country, as expressed by visiting buyers, is one of extreme optimism, based on indications in every center that industry is becoming steadily entrenched in a more stable position. Labor disturbances are losing weight and force, while the agricultural situation continues to hold exceptional promise in many sections.

**Marshall Field & Co.**—Current wholesale distribution of dry goods is running much less than the very large volume of the corresponding week of 1918. Road sales for immediate delivery are well up to the total of last year. Fall business is spotted. handkerchiefs are selling well and many orders for blankets are larger. Retailers continue to visit the market in large numbers, replenishing stocks depleted by excellent business. Collections are satisfactory.

**The Iron Age**—The opinion is general in the steel trade that the reduced prices announced by the Industrial Board at Washington on March 20 will bring out in the near future a moderate amount of new business, most of which buyers have held up since the stabilizing movement loomed up six weeks ago. The reductions range from $4.25 per ton on pig iron and $5 on billets to $10 on standard rails, and amount to $7 per net ton on plates, shapes, bars, wrought pipe, sheets and tin plate and to $5 on wire, wire nails, hoops and light rails. Eastern bar iron makers have met the reduction on steel bars, dropping their price from 2.90c. to 2.35c., Pittsburgh.

**American Wool and Cotton Reporter**—Optimism in the wool trade still continues. The mills are demanding wools with which to fill actual orders but are not generally anticipating wants far ahead. The general market for wool is good owing to the purchases of civilian goods. While there is an undercurrent of optimism for the future of cotton, the present actual business to the mills is quiet. There is, however, a little better feeling than there was, and while mill interests are not overconfident for the immediate future they feel the country is bare of manufactured goods. During the last fortnight or so there has been more inquiry and a small amount of "dribbling business" to the mills.

**Bradstreet's**—Factors of the week in purely domestic trade circles have included enlarged buying both at wholesale and retail; reports of excellent moisture, soil and winter-wheat crop conditions; the beginning of spring-wheat seeding in the southern areas of the northwest; more life in building trades and in lumber and in other materials; preparations making for an early opening of navigation on the Great Lakes; good sentimental effects from and some enlargement of actual buying of iron and steel following last week's cut in prices; larger than expected demand for desirable grades of wool at the Government auctions; a continuance of the gains shown in clearings as compared with a year ago, and a slight cutting down of the unemployment totals, this latter news being accompanied by reports from the northwest and south that in those sections unemployment is negligible, or that an actual need of labor, especially farm help, is already perceptible.

## Atlantic Seaboard

### BOSTON

**Disquieting factors. Railroad fuel problem has its local phase. Few purchases except of specialties. April and May orders scarce. New England tonnage for 1919 sure to be light. Hampton Roads coals dull. Shipping Board adheres to $2.50 rate. Fuel oil a factor. Mixed situation at New York piers. Special rate rumored on railroad fuel by water. Anthracite demand continues light. Scattered inquiry for coal is privately owned barges. Weather helps retail trade. Buyers wait for correction in rates.**

**Bituminous**—The uncertainties seem to have been accentuated the past few days. Indeed there is distinctly a weaker tone to the current market than was noticed a week ago. There is less faith in quotations for early shipment, concessions are so freely made on all the medium grades. Operators are striving to keep their men, but because of heavy stocks on hand New England consumers for the most part find themselves in no position to support producers who want to move coal. Any canvass of the trade discloses a surprisingly heavy tonnage in storage, and curtailments in the different lines of manufacturing are so general and so drastic that it will be July and August, if then, before anything like active buying will develop. The outlook is not encouraging from a trade standpoint, and there can be no hope of large tonnages and comprehensive buying so long as the industrial situation remains in its present posture.

Recent prices to the railroads show the effect of present conditions, and in no uncertain fashion. Bids to furnish one of the New England roads a stated tonnage for April range from $1.60 per net ton on Fairmont to $1.85 on coal from the Greensburg district. These prices are so much lower than the current quotations in the open market that they are bound to react unfavorably on buyers who were considering purchases for the next 60 days. Advantage has been taken of the urgent situation facing certain operators, and it is particularly unfortunate because consumers in this territory are to slow to realize the difference between the spot market and offerings for deferred or season delivery.

Aside from scattered buying of relatively small lots for shipment during the next few months, the only transactions are on special grades for season delivery. As previously reported these are in usual channels, and notwithstanding the extent to which most of the shippers failed for one reason or another to make deliveries last year there appears to have been little shifting from one source of supply to another. Most of these renewals have been made on the basis of $2.95 per net ton for South Fork coals, with exceptions where the coal is of admittedly superior quality. On certain of these specialties as high as $3.35 has been paid. Most of this tonnage has now been placed, however, or at least on as much as the operators think it prudent now to commit themselves, and for the next few weeks we are likely in this market to hear less of contracts and more of sales for limited periods of delivery. There is a lot of selling effort today to close business on a $2.95@3.10 basis, but buyers are not responding, even on the better grades. As a broad matter, the market in New England is simply not up to it, and purchasing is still on narrow and restricted lines.

On the other hand, the extreme anxiety of certain operators only tends to demoralize what market there is. New England buyers were accepting the statement that unless shippers could command their price they would keep the coal in the ground, when a fresh campaign was started to secure orders for prompt shipment. In Somerset and also in Cambria districts there has been a strong effort to induce early buying. Some weeks ago as low as $2.50 per gross ton was freely named on Quemahoning grades, and now $2.50@2.75 has been quoted on what have always been regarded as standard coals from the Wilmore Basin. Almost no tonnage will result from these efforts in New England, and it is rather a pity that buying sentiment here should be encouraged by this to await summer developments.

The movement here of Pocahontas and New River is extremely light. An attempt has been made to net $2.75 per net ton at the mines for both grades, but present indications are not hopeful. There are still accumulations at the Virginia terminals, and something of a tonnage has already been placed on the basis of $2.35 for Pocahontas. While barges and now and then a steamer in private hands can be chartered at $2 to Boston from Hampton Roads, yet these rates are only for single trips, and only the most loyal of customers are going to keep on paying a considerable premium for smokeless coals when Pennsylvania output is pressing for sale.

Bituminous prices at wholesale are about as follows, f.o.b. mines and at loading ports, per gross or net ton as designated:

| | Clearfields | Cambrias and Somersets |
|---|---|---|
| F.o.b. mines, net tons | $2.15@$2.75 | $2.80@$3.35 |
| Philadelphia, gross tons | 4.20@ 4.90 | 5.00@ 5.40 |
| New York, gross tons | 4.50@ 5.25 | 5.35@ 5.80 |
| Alongside Boston (water coal), gross tons | 6.10@ 6.85 | 6.90@ 7.65 |

Georges Creek is quoted at $3.20 f.o.b. mines per net ton.

Pocahontas and New River are unchanged at $4.70@5.25 f.o.b. Norfolk and Newport News, Va., for spot coal, the former Governmental differential of 35c. in favor of New River being fairly well maintained. Alongside Boston the present gross ton range would be $7.15@8.10.

**Anthracite**—The demand for domestic sizes continues light. Until the rates on railroad-owned barges are adjusted, or some kind of policy is made clear, there will probably be nothing like the usual spring shipments, at least for the present. Even all-rail, where there is no possibility of lower cost, the demand for domestic sizes is only transient. While certain of the retailers are trying hard to influence early buying on the part of the householder, there is an utter lack of snap and the public is not considering seriously all the material that is being handed out with regard to the great urgency of supplying the mines with orders thus early in the season. There is more coal in the bins of the ultimate consumer than is realized in some quarters, and there will have to be stronger inducements than are now offered to get the public to take its coal early.

There is only a scattered inquiry for coal by water, and then almost entirely in transportation that is privately owned and governed by market conditions. Coal in railroad barges is not being taken except in emergencies, and this is entirely due to the high rate that still prevails. A revision of the rate is momentarily expected, but as yet the trade cannot be certain it will be forthcoming.

### NEW YORK

**The new coal year finds trade in good condition and bright prospects ahead. Little coal moving because of harbor strike. Good demand for anthracite. Local consumers hesitate before ordering next winter's supply. Bituminous supplies short here, some pools reported as being empty. Shippers expect brisk business soon.**

**Anthracite**—The start of the coal year 1919-1920 finds the industry in good condition, with bright prospects for a busy summer. Demand, while it has not been brisk locally, has been good in other nearby sections, and this has been reflected in operations at the mines. In this harbor not much coal has been moved for nearly five weeks because of the marine strike. Up to the present this has had little effect upon the local situation, as most dealers were well supplied and are now able to take care of orders by substituting one size for another when it is necessary.

Last week's blizzard, which was the worst snow storm (in fact the only snowfall) of any account here this year, caused a slight flurry in demand on the retail dealers, but they were able to take care of it without much trouble. Many of the local yards are nearly cleaned out of coal, while some have not got coal of all sizes.

The inability of shippers to get tows from the loading piers has enabled the local retail dealers to get rid of some of the immense stocks of the anthracite steam sizes which they took in conjunction with prepared coals last fall.

The trade looks forward to a heavy demand when the harbor labor troubles are ended. Dealers are expected to place heavy orders in order to replenish their stocks, and also to take advantage of the present mine prices, which according to previous announcement are to be increased 10c. per ton for five months beginning May 1. It is also expected that household consumers will begin to fill their bins for next winter just as soon as they realize that there will not be the usual spring reduction. They have been influenced in their desire to wait before placing their orders by the announcement that an investigation is to be made of the price situation.

There is a good demand for all-rail coal, and dealers in a position to get it are taking in a good supply. Salesmen say that conditions inland are brisk, and that unless production increases considerably from what it now is there will be a severe shortage before the summer is half over. The small production is due in most part to the lack of orders due to small consumption last winter.

There was a heavy decrease in dumpings at the New York Tidewater docks during the week ended Mar. 28, 986 cars having been dumped as compared with 1399 cars the previous week.

The demand for the steam coals continues active and there is no great surplus. The strike has had little effect upon the supply required by the trade in lower Manhattan, most of their coal being brought by wagons and trucks by ferry from Jersey City.

Current quotations, white ash, per gross ton, at the mine and f.o.b. tidewater at the lower ports are as follows:

| | Mine | Company Circular |
|---|---|---|
| Broken | $5.95 | $7.80 |
| Egg | 5.85 | 7.70 |
| Stove | 6.10 | 7.95 |
| Chestnut | 6.20 | 8.05 |
| Pea | 4.80 | 6.55 |
| Buckwheat | 3.40 | 5.15 |
| Rice | 2.75 | 4.50 |
| Barley | 2.25 | 4.00 |

**Bituminous**—A better demand and an improvement in harbor conditions have improved matters here. While it has not been possible to move coal from the docks with the same freedom as under normal conditions, consumers who have been in actual need have been able to get coal when they were willing to pay the additional cost of towing made necessary by strike conditions.

Public service corporations and steamships are now being taken care of without any trouble, due to the assistance given by Government agencies, but the bins of industrial concerns are nearly bare and manufacturers are becoming anxious. With the strike over shippers look for a heavy demand for coal which ought to be reflected at the mines.

Coal supplies at the docks are not large. Embargoes placed on shipments since the strike in the harbor began have kept receipts down to actual needs, with the result that it was said certain pools were without coal at the end of last week. A statement of the Tidewater Coal Exchange showed that on Mar. 26 there were 5729 cars of coal on hand in this harbor. There have been orders issued modifying previous orders, which will be the means of increasing supplies at the docks.

Wholesale dealers report many orders awaiting shipment. They say that with the labor trouble ended there will be a serious shortage of coal here. Loaded

boats are in good demand now, and some consumers are willing to pay fancy prices if deliveries can be made. Quotations on this class of business vary much, depending upon the towing distance. In some instances as high as $8.50 alongside is said to have been quoted for coal for steamships.

The trade is holding close to the late Government maximum prices for coal. There has been an improvement in contract business, and it is believed that a goodly percentage of the production for the next coal year has been signed up.

There was an improvement in dumpings of bituminous coal here during the week ended Mar. 28, reports showing 3012 cars dumped as compared with 1995 cars the previous week, an increase of 1017 cars.

Current quotations at the mine for various grades of bituminous coal for spot delivery and contract follow:

| | Spot | Contract |
|---|---|---|
| South Forks | $2.90 to $3.25 | $2.95 to $3.50 |
| Cambria County (good grades) | 2.80 to 3.10 | 2.95 to 3.25 |
| Clearfield County (good grades) | 2.65 to 2.95 | 2.80 to 2.95 |
| Reynoldsville | 2.65 to 2.85 | 2.85 to 2.95 |
| Quemahoning | 2.85 to 3.10 | 2.95 to 3.10 |
| Somerset County (best grades) | 2.75 to 2.95 | 2.95 to 3.10 |
| Somerset County (poorer grades) | 2.40 to 2.75 | 2.75 to 2.95 |
| Western Maryland | 2.50 to 2.75 | 2.65 to 2.85 |
| Fairmont | 2.10 to 2.35 | 2.35 to 2.50 |
| Latrobe | 2.10 to 2.25 | 2.25 to 2.40 |
| Greensburg | 2.35 to 2.40 | 2.35 to 2.60 |
| Westmoreland ¾-in. | 2.60 to 2.75 | 2.65 to 2.75 |
| Westmoreland run-of-mine | 2.40 to 2.65 | 2.40 to 2.65 |

### PHILADELPHIA

**Anthracite dullness increased by proposed price investigation. Little spring business offering. Some shifting of trade, both wholesale and retail. Retail price-cutting limited. Retailers do not fear investigation. Coal well prepared except pea. Steam coal contracts being made. Collections slowing up. Bituminous quiet. High-grade fuels scarce. Contracting chief activity.**

**Anthracite**—Temporarily, at least, the spring business is in a sad state and much blame is placed on the publicity given in the daily papers to the proposed investigation of coal prices. While it appears to us that the best the public can hope for is an avoidance of increased rates, the dealers all report that most of their customers refuse to place orders because they apparently believe prices will be lowered at least 50c. a ton. We even hear of dealers offering to protect prospective buyers in the event of a reduction, but so far this offer has met with little success in getting business.

After numerous interviews we are firmly convinced that prices will advance on May 1 as per schedule and a large majority of the dealers are satisfied they will; but the fact stands out that the demand is light. Unless something happens to straighten out the market and cause the public, and then the dealers, to buy coal substantially for at least three months, there is surely trouble ahead.

Some houses report making sales to new customers and missing the orders of some of their old trade. This is an echo of the trials of 1917, when many dealers thought they would have fared better had they been doing business with another house. The retailers also notice considerable shifting of trade. No doubt they all have a number of dissatisfied customers, and they will all lose some and gain others.

One surprising feature of the trade is the comparative firmness of the retail prices. Except in the northeastern section of the city, where several dealers have made substantial reductions from the general prices, we can learn of no price-cutting.

A number of dealers in referring to the proposed investigation which it is reported may cause their margin of profit to be looked into, state that any lowering of their prices that might be forced upon them would necessarily be made possible only by reducing wages. Labor is not scarce, but it is a fact that few dealers have taken advantage of it by cutting wages. Necessarily they are employing fewer men and it appears to be the policy to lay them off when not needed rather than to ask them to work for lower pay. Any number of dealers express their willingness to throw open their books to any Governmental or State investigators.

It has been a long while since such well prepared coal has come to this market. The improvement is general and very noticeable. All shippers seem to realize that under present conditions it would be impossible to hold their trade with coal of a poor standard of preparation. Most of the coal coming here now is well above the standard set by the big shippers. If there is an exception it is pea coal. Operators do not seem to see the necessity, or at least the advantage, of improving this size. Many dealers have on hand a supply of pea coal which was shipped during the winter. They hesitate to deliver in more than one-ton lots because it is small and poorly prepared. They have been buying a few cars to deliver on the spring orders, but report little improvement as to size. This complaint is general. The coal may be cleaner and contain less buckwheat than during the past year, but it is still too small. A number of individuals are offering this size at less than circular rate, and all shippers are having trouble in disposing of their production. Stove and nut still have the call, with egg in fair demand.

The market on steam sizes is quiet. Buckwheat at $2.75 is being freely offered by some individual shippers. The big companies continue to ask and get $3.40 for this size. The companies are also doing considerable contracting on the steam sizes, but it is noticeable that on contracts covering a year's supply from Apr. 1 some are at least inserting a clause protecting the buyer in case of any reduction in the miners' wages. This is true of their contracts for all steam sizes. One big company we know of is actually not inserting any price, but simply guaranteeing to ship a specified tonnage during the year at the price in effect at time of shipment, which at this time is $3.40 for buckwheat.

Some shippers report a greater proportionate demand for rice than for buckwheat, but sales are being recorded at $2.40 to $2.50. Barley has been quoted low, and we have heard of it being offered at $1.25, but this is probably river coal, or some other low grade material.

Collections are dragging and it is believed that in their anxiety to secure business the shippers have recently become quite lenient with many old customers.

The prices per gross ton f.o.b. cars at mines for line shipment and f.o.b. Port Richmond for tide are as follows:

| | Line | Tide | | Line | Tide |
|---|---|---|---|---|---|
| Broken | $5.95 | $7.80 | Buckwheat | $3.40 | $4.45 |
| Egg | 5.85 | 7.70 | Rice | 2.75 | 3.65 |
| Stove | 6.10 | 7.95 | Boiler | 2.50 | 3.50 |
| Nut | 6.20 | 8.05 | Barley | 2.25 | 3.15 |
| Pea | 4.80 | 6.40 | | | |

**Bituminous**—Production continues to be low due to the continued lack of demand. The trade continues to mark time until such a time as present stocks are greatly reduced and there is something of a resumption of industrial activity in this district. Producers and middle houses are spending most of their energy now on making contracts, and fair business is reported in this direction. At present there is something of a scarcity of high-grade coals, as the larger share of limited production is being placed on contracts. Prices continue their display of firmness, with price range fairly represented by the following:

| | |
|---|---|
| Georges Creek Big Vein | $3.10 @ $3.25 |
| South Fork Miller Vein | 3.00 @ 3.20 |
| Clearfield (ordinary) | 2.65 @ 3.90 |
| Somerset (ordinary) | 2.55 @ 2.80 |
| Fairmont | 2.00 @ 2.35 |

### BALTIMORE

**Contracting for new year slow, as consumers remain in open market for light purchasing. Coal men warn that now is low period and Government officials talk of impending shortage, but to little effect. Prices on immediate sales off color. Hard coal men still undecided here.**

**Bituminous**—With the Government fuel experts talking of shortage of coal in the months to come unless business men awaken to the fact that orders should be placed for coal at once in order to assure early production of a greatly increased nature, and with mine operators showing confidence in the future by refusing to contract at prices below the old Government figures for better grade coals, there is still a very flat immediate market.

Considerable coal caught awheel is sold at prices running all the way from $2 to $2.50 mine basis for good grade. Coal is being shipped from mines for immediate use at prices ranging from $2.25 up to $2.65 or $2.75; and yet the same coals are refused on contract for future delivery at prices below the Government maximums of the past of $2.75 and $2.95.

The immediate sales are undoubtedly due to the fact that a number of mines find that they now have but one or two days of work on hand and can not maintain organization and hold mining forces with less than a three-day-per-week operation. In the effort to spur production to such a point some operators are offering the cut prices. Meanwhile, despite the warnings of well posted fuel men, the consuming public is far behind the ordinary spring schedule for getting under cover.

In relation to the growing bunker business here Mayor Preston has received an interesting communication from H. M. Hitchcock, assistant director of operations of the Emergency Fleet Corporation, to the effect that this city may shortly be greatly increased in importance as to the handling of both coal and oil for bunker purposes.

**Anthracite**—The end of the past week saw the retail hard coal situation here still somewhat undecided. While independent operators for the most part have indicated that they will follow the company reduced coal price schedule and the 10c. per month advance thereon after May 1, there is a strong feeling here that some coal off that schedule is likely to be offering from mines that wish to continue operation. The local retailers have talked over the situation pretty thoroughly but have found some phases of it rather uncertain. The result has been that no definite announcement as to a spring retail schedule for Baltimore is as yet forthcoming.

## Lake Markets

### PITTSBURGH

**Production still light. Inequality of Government prices still mentioned. Some demand for gas coal. Prices fairly well maintained.**

The local coal market has not improved. Whatever help might be rendered the situation by the further depletion of stock piles has been equalized by lower rate of coal consumption, both for manufacturing purposes and as domestic fuel. There has been hardly any demand for domestic coal, and so little, indeed, as to prevent a clear-cut market price from being disclosed.

Production in the Pittsburgh district is at between 25 and 30 per cent. of capacity, as has been the case for several weeks past. A number of mines are closed entirely, but the restriction in most cases is by operating mines short time. Labor seems to be fairly content with the amount of employment it has received. Labor leaders are understood to be assiduous in pointing out to the men that decreased production is essential for the maintenance of prices, and in turn of wages.

Pittsburgh district coal operators still refer to what they consider the great inequality in some of the Government coal prices, claiming that relative to cost of production the Pittsburgh district was given about the lowest coal price of all. The aftermath, they point out, is that when the coal market in one district or another declines from the old Government level the Pittsburgh district market is expected to decline likewise, whereas it is not in position to do so.

Relatively speaking, there is a much better demand for gas coal than for steam coal. While there is little demand for steam coal there is still less for domestic. Odd lots of coal loaded on track and requiring to be moved frequently go at ridiculous prices, which are not considered in quoting the market. The large operators are holding quite stiffly to regular prices, but smaller operators frequently shade 10c. or 15c., and the market is thus quotable as follows: Steam coal—Slack, $2@2.10; mine-run, $2.25@2.35; domestic, 1¼-in., $2.25@2.35. Gas—Slack, $2.25@2.35; mine-run, $2.35; ¾-in., $2.50@2.60; 1¼-in., $2.60@2.75, per net ton at mine, Pittsburgh district.

### TORONTO

**Trade continues very quiet. Ample stocks on hand. Consumers withholding orders in hope of lower prices.**

Conditions in the coal trade are unchanged, business being unusually quiet for the season and dealers have large stocks on hand. The demand as a rule is limited to present requirements as consumers in many cases are postponing orders in the hope of a reduction in prices. Dealers state that there is not the slightest reason to expect any drop in prices and that any change later in the season is more likely to be an advance. Prices are generally well maintained with occasional slight shading in the wholesale rates.

Quotations for short tons are as follows:

Retail:

| | |
|---|---|
| Anthracite egg, stove, nut and grate | $11.50 |
| Pea | 10.00 |
| Bituminous steam | 8.25 |
| Slack | 7.25 |
| Domestic lump | 10.00 |
| Cannel | 13.00 |

Wholesale f.o.b. cars at destination:

| | |
|---|---|
| Three-quarter lump | 6.25 |
| Slack | 5.25 |

## BUFFALO

**Trade improvement slight. General business hanging off. Jobbers uneasy over Government action. Anthracite slightly more active. Loading lake vessels.**

**Bituminous**—Some slight improvement is reported by certain members of the trade, but conditions in general are not so good. The jobber is reducing his supply, but is not ready to buy liberally. As a rule he is still waiting for prices to come down, though he has been disappointed for the most part so far. Coal offered at a reduction is likely to be of poor quality, so a seeming decline may not mean anything. Jobbers are not pleased over the move to bring the operators and the Government closer together, and some say it is a direct blow to them. It will take time to decide that point.

Some Allegheny Valley prices are coming down to the Pittsburgh, but the rule is to hold to the old Government price of $4.65 for thin vein, all sizes, with $4.45 for Pittsburgh and No. 8 lump, $4.20 for same mine run and slack, $5.65 for smithing and smokeless, and $5.60 to $6.10 for cannel, all per net ton, f.o.b. Buffalo.

**Anthracite**—The demand has increased. Consumers are beginning to buy for winter supply, but the actual consumption is small as the weather has continued warm and the rule is to go back to natural gas since the restriction is off. The complaint of much impurity, especially slate, in the coal continues and it is hoped that the legislature will pass the bill forbidding it.

Most of the activity in the harbor is due to the loading of lake vessels with anthracite, more than 150,000 tons now being afloat. There is not much demand from the upper lake ports, as a surplus of considerable extent will be on hand there on May 1. Some of the smaller ports have asked for coal, but as a rule the vessels have been taken only for the head of the lakes, where there is cargo to bring back.

The lake rates for leading ports have been fixed at 42½c. to Lake Superior, 50c. to South Chicago and Milwaukee, and 60c. to Chicago. This is a reduction of about 5c. from last season. The minor ports will pay 10 or 15c. over the larger ones.

## CLEVELAND

**Conditions in all local coal markets, except domestic, are slightly improved. Efforts to move steam coal not bearing much fruit. Coarser grades decidedly stronger. Coal rates to head of Great Lakes for 1919 reduced. Lake trade now can be on in full swing.**

**Bituminous**—The increasing flow of bituminous to Lake Erie ports for loading for the head of the Great Lakes is stirring the local steam-coal market somewhat, but the effect is not marked. Steam-coal users so far have not proved responsive to efforts of operators and the Fuel Administration to renew buying. Hope, however, is held out that the agreement on iron and steel prices will stimulate business, iron and steel interests being the leading steam-coal users in northern Ohio.

Meanwhile, with users still determined to clean out their stockpiles before reëntering the market, prices are decidedly firmer. Conviction is growing that not only will present prices hold, but that coal will be decidedly scarce later in the summer when the lake trade gets into full swing, present stockplies are exhausted and steam-coal users contemplate their winter supply. Purchasing by the railroads, too, is a factor that is looming large. It is understood that the administration has been anxious to place contracts with No. 8 operators, but the operators have delayed negotiations until the trend of Secretary Redfield's price-stabilizing program can be definitely ascertained. Between 30 and 40 per cent. of No. 8 coal produced becomes railroad fuel, a percentage big enough to swing prices on the rest of the market.

While a great many No. 8 district mines have not yet felt the stimulus of the opening of the lake trade and continue on a 25 to 30 per cent. basis, the majority have increased their operating percentage. Navigation on the Great Lakes will not open in earnest until about Apr. 10, so two more weeks of comparative idleness may be looked for. A growing feeling of unrest is apparent among the mine workers and operators are anxious to get them busy, believing this is to be the best cure for the radicalism that is seeping through eastern and southern Ohio coal-mining districts.

The domestic bituminous trade, along with the anthracite one, continues slow. Mine-run and lump Pocahontas are more difficult to get than a few weeks ago, but dealers still are quoting $7.20 for the former and $7.50 for the latter, net ton delivered. Anthracite demand has fallen to an almost negligible factor.

**Lake Trade**—A fair-sized block of coal has been covered by a local interest for 42½c. a ton to the head of the lakes, 50c. to Milwaukee and South Chicago and 60c. to the Chicago River. These rates, which are the 1917 ones revived, compare with 48c. to the head of the lakes and 50c. to Lake Michigan in the 1918 season. It is expected that these rates will be accepted all around and will prove the prevailing 1919 ones.

Considerable coal is moving toward the lakes, and probably 20 cargoes have been loaded; but the season has not yet been actually opened. Great Lakes vessel interests are not anxious to repeat last spring's performance, when the season was rushed and thousands of dollars were necessitated by repairs for ice damage, while stocks on upper lake docks still are ample. It still looks as though the season will be quite slow in getting under way.

Coal prices per net ton delivered are as follows:

| | |
|---|---|
| Anthracite: | |
| Egg | $10.80 @ 10.95 |
| Chestnut | 11.00 @ 11.10 |
| Pocahontas: | |
| Lump | 7.50 |
| Mine-run | 7.20 |
| Domestic Bituminous: | |
| West Virginia splint | 7.05 @ 7.15 |
| No. 8 Pittsburgh | 6.15 @ 6.35 |
| Massillon lump | 6.95 @ 7.10 |
| Steam coal: | |
| No. 6 slack | 4.45 @ 4.55 |
| No. 8 slack | 4.90 @ 4.95 |
| Youghiogheny | 4.95 @ 5.05 |
| No. 6 mine-run | 4.45 @ 4.55 |
| No. 8 mine-run | 4.90 @ 4.95 |
| No. 8, ¾-in. | 5.50 @ 5.60 |

## DETROIT

**With buyers in the steam and domestic branches of the bituminous trade maintaining an attitude of indifference, Detroit jobbers are doing little business.**

**Bituminous**—Dullness is a distinctive feature of the bituminous coal trade in Detroit. In contrast with the period before the war, orders are infrequent and of small proportions. To piece out stocks and obtain coal in a form called for by their customers, some of the retailers are said to be placing small orders for domestic lump, with the proviso that delivery must be immediate. By getting the coal at once, these buyers expect to be able to distribute it before the cold weather passes, thus avoiding adding to the excessive stocks, which most of the leading dealers will be obliged to carry into the summer. These stocks usually consist of fine coal in a variety of sizes and include considerable low grade coal and are proving difficult to reduce.

The large proportion of inferior stock in the reserve piles of steam plants also is discouraging additions to reserves. Users of steam coal want to get the undesirable coal out of the way. The magnitude of their stock piles and the diminished activity of their plants since ending war work prolong the time that must elapse before many of the buyers will be in position to enter the market.

Though there is said to be little coal on tracks due to the caution of jobbers in restricting orders to the quantity for which they have buyers, much difficulty is being experienced in selling slack and mine run. In the case of the former, prices are reported to have been quoted as much as $1 below the Fuel Administration scale. Domestic lump is firmer and prices are said to be holding at the Government basis.

**Anthracite**—Because of lower temperatures, there has been a slight improvement in demand for anthracite among domestic consumers recently. There seems to be sufficient coal of all domestic sizes available to meet the demand. Some retailers are warning their customers of a prospective advance in price Apr. 1, reflecting the advance announced by producers. The supply of domestic coke also seems plentiful and numerous domestic buyers are utilizing the opportunity to substitute coke or anthracite for the proportion of bituminous coal, ordered by the fuel administration.

## COLUMBUS

**A better feeling is shown in the coal trade, especially in steam circles. Buying is still limited to actual needs and little contracting is reported. The price question on contracts is still unsettled. Considerable cutting on spot shipments is reported.**

The coal trade in Ohio is becoming more active, and the tone of the trade is steadily improving. Although business is rather slow in getting on a peace basis, still the coal trade is becoming better and producers as well as shippers are more encouraged. The pessimism of the past few months is gradually passing away, and coal men generally are preparing for a more active demand.

The steam business is still slow, as is inevitable under the circumstances. Reserve stocks are still large, and with consumption cut to a rather low point, purchasers are slow in entering the market. Iron and steel plants are in a better shape now, and orders from this source are expected within the coming few months. Rubber factories are still well stocked with fuel. Railroads are taking only a fair tonnage as the freight movement is somewhat restricted. Some of the war industries are being placed on a peace basis, and this presages a better fuel demand. On the whole the tone of the steam trade is better and more buying is expected soon.

Contracting is still unsettled. Quite a few contracts expire around Apr. 1, but so far few have been renewed. Prices are not fixed, and as a result the purchaser is holding off. The ability to buy sufficient fuel for current needs on the open market, often at reduced prices, does not bring contracting any nearer completion. Some few contracts at only a slight reduction from the last Government price have been reported.

The domestic trade is slow. Retail stocks are apparently sufficient for the present, and dealers are loath to buy under existing circumstances. There is a fair demand for the fancy grades such as Pocahontas and West Virginia splints. Hocking and Pomeroy grades are not selling well. In fact, retail stocks are in such shape that little demand from that source is expected within the coming few months. Retail prices are still fairly well maintained, although some of the dealers are cutting in order to move stocks.

## CINCINNATI

**Slightly improved demand is noted, especially in smokeless coal for contract. Little change is general conditions, and spot market is overloaded and weak.**

While there has been virtually no change in the fundamental conditions governing the Cincinnati market during the past week, there is a more optimistic tone to the reports of leading producers and jobbers, as they state that contract demand for the better grades of coal, especially smokeless, is satisfactory, and that prices are not governed by the present surplus of fuel on the market. Demand is not heavy, but what contracts are being closed are closed under satisfactory conditions.

It is in the bituminous department of the market that the most unsatisfactory state of affairs exists, due to an oversupply of coal and an almost entire absence of demand, bringing about a weakness which will hardly disappear until there is more of an equilibrium between supply and demand.

Industrial conditions, in this section at least, are regarded by the coal trade as good, as there have been no extensive shutdowns among the factories, and employment is still general, there being comparatively few men out of work. Consumption of coal, however, appears to be at the minimum; and retail dealers are not in the market to any extent, as their customers are as a rule carrying some coal over, and there is now virtually no domestic consumption, as the weather for the past week or more has been so warm as to require no heating, either in homes or factories. The buying by retailers is consequently confined to those who can reasonably anticipate a considerable business, and who therefore are willing to protect themselves by securing moderate supplies of coal under present conditions.

## LOUISVILLE

**Eastern Kentucky operators meeting with slightly better demand, with conditions duller in western Kentucky fields.**

Such demand as there is for coal at the present time is largely for high grades. Considering the close margin existing between eastern and western Kentucky fuel, the former is managing to get the business. Eastern Kentucky as a whole is running 50 to 60 per cent. of full-time ca-

pacity, whereas western Kentucky is hardly working two full days a week at the present time, not being able to secure business on either domestic or steam sizes. The differential existing between the higher-grade eastern Kentucky coals and the western Kentucky grades is not sufficient at this time to create a demand for the lower grades, resulting in dull business, as the western Kentucky operators are holding prices firmly.

The demand for domestic coal is lightening up somewhat, but steam is slightly better, as many industrial consumers are now running a little low, and are working out their stocks. The Lake movement should start soon, and is expected to take care of a fair volume of business.

Jobbers report that retail stocks as a whole are low, and that a fair business is being handled on immediate delivery basis. Retailers claim that business is dull as a whole, and that they can see little encouragement unless sufficient publicity is given to the production situation to force a stocking demand during the spring and summer months.

On a short-ton basis the Kentucky market is about as follows:

| | Eastern Kentucky | Western Kentucky |
|---|---|---|
| Block and egg | $2.85@$3.00 | $2.60 |
| Run-of-mine | 2.20@ 2.40 | 2.35 |
| Nut and slack | 1.90@ 2.00 | 2.05 |

Some eastern Kentucky operators are selling no block or egg for less than $3 and are getting $2.60 for mine-run. Others are getting as high as $2.10 for nut and slack. However, some nut and slack is selling at as low as $1.85, and some run-of-mine is quoted at as low as $2, where operators are anxious to dispose of spot coal.

Western Kentucky prices are fairly firm, but some immediate delivery nut and slack is selling at as low as $1.85, with 15 to 20c. cuts on other grades. The western Kentucky market as a whole is fairly firm, however.

### BIRMINGHAM

**Domestic trade improves as dealers begin to contract for next winter's supply. Steam situation without material change. Mines operating on reduced schedules hold production in the range of requirements. Prices remain stable.**

Dealers in domestic coal are beginning to evince an interest in the market, and the number of contracts made during the past week is believed to mark the start of a buying movement which will hold up well through the spring and summer months. Sales agency officials express the opinion that dealers who neglect to provide for their year's requirements within the next few weeks will find difficulty in securing the coal needed later on—especially the higher grades, the production of which is always far below the requirements of the trade. The supply of the better and also the medium grades is hardly adequate to the needs at this time. Prices are as follows per net ton, mines:

| | Lump and Nut |
|---|---|
| Black Creek and Cahaba | $3.85 |
| Corona | 3.40 |
| Carbon Hill | 3.15 |
| Montevallo | 5.00 |

Steam continues easy and the local market was not featured by any large deals during the past week. Small orders and contract business in hand have about absorbed the daily production. Quotations are on basis of the last Government schedule, prices being as follows per net ton mines:

| | Mine-Run | Prepared | Screenings |
|---|---|---|---|
| Big Seam | $2.45 | $2.75 | $2.40 |
| Black Creek and Cahaba | 3.45 | 3.75 | 3.05 |
| Corona, Pratt | 2.85 | 3.05 | 2.45 |

## Coke

### CONNELLSVILLE

**April adjustments under consideration. Narrow prompt market. Prices unchanged. Production still decreasing.**

Adjustments have not been completed as to prices to be paid for shipments in April against furnace coke contracts that call for monthly negotiation when there is no Government price to control. Some of these contracts were adjusted at $4.50 for March, but the great majority were at $4.25, and it is possible that some adjustments were at still less. Operators speak now of desiring a $4.50 adjustment for April, but the probability is that they will be content with $4.25.

A difficulty in the situation as to adjustments is that there is no well defined spot or prompt market to furnish a basis for contract adjustment. There are offerings at all sorts of prices, but very little buying. Some of these offerings are at less than $4, but they are regarded as of inferior grade in any event, while the total tonnage is not sufficient to make the market. At $4 the few furnaces that have any occasion to buy prompt lots have been able to get all they needed, and this is commonly regarded as the market, though it is contended that no large quantities could be picked up at the figure.

Coke production continues to decline, but hardly keeps pace with the declining consumption, as every now and then another blast furnace goes out. Some of the by-product operations attached to steel works furnaces have had to curtail output. These operations would be glad to sell coke in the open market, but tonnages called for are so small that it is not worth while making the effort to sell, and Connellsville coke continues to make what little market there is.

Foundry coke is unchanged, there being fair brands available for prompt shipment at $4.50, while a few of the old line operators, with contracts to protect, still quote $6.

The market for spot and prompt is quotable at $4 for furnace grade of standard quality and at $4.50@6 for foundry coke, depending on brand, per net ton at ovens, Connellsville region.

The "Courier" reports production in the Connellsville and Lower Connellsville region in the week ended Mar. 22 at 187,806 tons, a decrease of 14,502 tons.

**Buffalo**—The season still drags, on account of the failure of iron ore to move. The lake fleet might have been active all winter, but instead of pushing out early there is no disposition to move as yet. Even the coal loaded is to move at the option of the vessel, and it may be here a month longer. Quotations on coke remain at $7.60 for foundry, $6.60 for furnace and $6.10 for off grades, the last price being quite unsteady, with fuel coke much of a drug on the market. All prices are f.o.b. Buffalo.

## Middle Western

### GENERAL REVIEW

**Market conditions improving. Operators not eager to close contracts, though inquiries are brisk. Railroad coal question. Prices being maintained.**

There has been but little change in the coal market during the past week. There is no denying that market conditions are now a little better than they were a week or so back. The current demand for coal continues dull in the extreme, but considerable interest is now being taken by the public in coal contracts. Strange to say, the larger and better informed of the operators are not falling over themselves in eagerness to obtain contracts, and absolutely no concessions are being made in regard to price.

The reason for this interest on the part of the coal-buying public in contracts is that the labor situation in most of our important coal-producing fields is anything but satisfactory. If labor troubles occur in any of the fields, it will have a tendency to raise sharply the current prices in the coal-producing districts not affected, and those purchasing agents not protected by contracts will have to meet this advance in price if they wish coal. There is still a big amount of coal in storage in this territory, and while this tonnage is enough to affect a weak market, it is not great enough to be of much help in case of prolonged labor difficulties.

Another factor which may have some bearing on the contract question is that general manufacturing and industrial conditions appear to be more stabilized. More confidence all along the line is being felt. Industries that were practically at a standstill two or three weeks ago are now fairly active, although but few are running full time.

The question of railroad coal appears to be progressing satisfactorily, and it is believed that this matter will be settled on a permanent basis by the end of April. This item alone is enough to give the market a stronger tone than it has had for some time. The railroads consume more coal than any other industry, and this market assured to the operators cannot but give a better feeling of confidence to the entire coal industry.

Coal is moving more freely at this writing than it has for a long time. Reports come in that Minnesota, Iowa, Wisconsin, Illinois and Michigan are buying coal in more liberal quantities than heretofore. Operators in southern Illinois say that there has been some improvement in running time during the past week.

Prices for high-grade Southern Illinois coals continue firm. The Springfield district continues to run about the same, with prices holding up fairly well. There has been no shading of prices on coal from the better known central Illinois mines. When the question of railroad fuel is settled, there will be a big improvement in running time for the whole central field. In Indiana, especially in the Fourth vein district, and also Knox County, conditions are better than they have been for some time. Practically all mines are reporting better running time, more demand for coal and consequently less price-cutting; in fact, no price-cutting on the part of the larger operators.

### CHICAGO

**Some large steam contracts reported. Domestic situation fairly good.**

The Chicago steam market shows no signs of any radical change, although some large contracts were reported. The current market continues fairly dull, although there is some improvement due to renewed industrial activities. The only news of importance is that the bids for the city business were opened, and proved a great surprise, both to the trade in general and the city fathers in particular. It was found that the bids were considerably under what the city was prepared to pay for its coal. This situation is not without a lesson to some of our best Chicago dealers.

The domestic situation is fairly good. There is a demand for high-grade domestic fuels, which will probably keep up for another month.

Prices per ton are as follows:

| | F.o.b. Mines | Rate to Chicago |
|---|---|---|
| **ILLINOIS** | | |
| Southern Illinois | | |
| Franklin, Saline and Williamson Counties, etc. | | |
| Prepared sizes | $2.55@$2.75 | $1.55 |
| Mine-run | 2.35@ 2.50 | 1.55 |
| Screenings | 1.85@ 2.20 | 1.55 |
| Central Illinois | | |
| Springfield District | | |
| Prepared sizes | $2.55@$2.75 | 1.32 |
| Mine-run | 2.35 | 1.32 |
| Screenings | 2.05 | 1.32 |
| Northern Illinois | | |
| Prepared sizes | $3.25 | 1.24 |
| Mine-run | 3.00 | 1.24 |
| Screenings | 2.75 | 1.24 |
| **INDIANA** | | |
| Clinton 4th Vein District | | |
| Prepared sizes | $2.65@$2.75 | 1.27 |
| Mine-run | 2.35@ 2.45 | 1.27 |
| Screenings | 2.05@ 2.25 | 1.27 |
| Knox County Field | | |
| Prepared sizes | $2.65@$2.75 | 1.37 |
| Mine-run | 2.35@ 2.45 | 1.37 |
| Screenings | 2.05@ 2.25 | 1.37 |

### MILWAUKEE

**Continued dullness marks the coal market, but prices are well sustained. Yards well supplied with all grades.**

Nothing has occurred to break the monotony of the coal situation at Milwaukee. The demand is light all around, and it must continue to grow lighter with each passing day, as the season is too far advanced to admit of anything like zero weather. Prices are firmly held, however, and there will be no change in this respect until the beginning of the new coal year in May. Illinois coal is selling in that state from 60 to 90c. per ton lower than last year, according to reports, but until somebody here runs out of coal and buys at the new rates, they will have no effect here.

Pocahontas coal, which was practically out of the market during the last year of the war, is again taking its place. All sizes and mine-run can now be readily secured. Anthracite is coming by rail daily.

Motor trucks are fast succeeding horses in the delivery of coal in Milwaukee. The Milwaukee-Western Fuel Co., the largest coal firm in the city, and the Gross Coal Co., are selling out their horses, wagons and kindred equipment and will rely upon motor vehicles entirely in future.

### ST. LOUIS

**Warm weather and a quiet market, with nothing to indicate change. An abundance of all kinds of coal. Domestic demand entirely off and steam demand light, with a little storage call here and there.**

Domestic tonnage has practically fallen off altogether and there have been a few scattered orders for storage coal. General

conditions in the Illinois field are unsatisfactory, both to the miners and the operators, and it is evident that a readjustment must take place. The miner appears confident of his ability to get anything that he may ask for, and some of these demands are so unreasonable that the operator will not even listen. On the other hand, the operators have some grievances that need readjusting, judging from reports, and it may be to mutual advantage if both sides get together to straighten these matters out so that when work does resume the industry will be on a more equitable and stable basis.

In the Standard field conditions are unusually bad. The demand for this coal seems to have fallen off almost entirely, except for a little steam. Some railroads are not picking up any storage coal, but their local requirements seem to be unusually light. The northern roads are not taking the tonnage now they did in previous months, and all along the line there is a slowing up. This, added to the dropping off of domestic business, has put some mining communities in a serious plight. There is much dissatisfaction over the one day a week some miners are getting, and others no work at all, while in some places the mines are working three and four days. The men seem to think this tonnage should be divided equally among all operations.

Up to Mar. 28, Standard screenings were selling at around $1.50, 2-in. lump from $1.75 to $2, 6-in. lump from $1.75 to $2.25, egg from $1.70 to $1.90, and mine-run about $1.65 to $1.75. Effective Apr. 1 the prices were increased.

In the Mt. Olive field conditions are somewhat improved. There is little demand for Mt. Olive coal in this market, but a fairly good tonnage seems to move north. The railroad tonnage seems to hold up fairly well in this field, but working conditions are poor, almost as bad as in the Standard field. However, prices are being fairly well maintained.

In the Williamson and Franklin County field, and also in Du Quoin, there is a slowing up in business that has caused some uneasiness among the operators. As a whole, however, conditions are all that could be expected, and there is every reason to be optimistic that this field will be able to maintain its prices and at the same time provide enough tonnage to keep both the miners and the operators satisfied.

The railroad tonnage continues fairly good, but the movement on some roads is not all that could be desired. This is chiefly on account of the large number of unbilled loads that have congested the sidings in this district.

Nearly all mines that are running are getting two and three days a week and some more, but several mines are shut down entirely. The independents are still selling coal below the circular, which the association members manage to maintain. Steam sizes are heavy in this field and domestic fairly active.

In the St. Louis market proper there is little demand for anything. Anthracite is coming in, but there is little moving, and smokeless has as yet failed to make any impression.

The new coke prices to the domestic consumer in St. Louis, as announced by the M. W. Warren Coke Co., which handles the output of the gashouses and the by-product plant here, will be $9.50 on by-product and $7.75 on gashouse. The retailer will get $2.75 gross margin on these prices. These prices are f.o.b. the retailers' tracks, and the same prices will prevail at the retorts.

The circular at the present time f.o.b. the mines is:

| Williamson and Franklin County Association: | | Mt. Olive and Staunton | | Standard | |
|---|---|---|---|---|---|
| Lump, egg and nut | $2.75 | .... | | .... | |
| Washed Nos. 1 and 2 nut | 2.85 | .... | | .... | |
| Independent: | | | | | |
| Lump, egg and nut | 2.55 | 2.55 | Lump and egg | 2.25 | |
| Washed Nos. 1 and 2 nut | 2.85 | .... | 2x3 nut | 2.00 | |
| Mine-run | 2.35 | 2.20 | | 2.00 | |
| Screenings | 2.20 | 2.05 | | 1.75 | |
| 3-in. lump | .... | 2.30 | | .... | |
| 2-in. lump | .... | .... | | 2.15 | |
| 2x6 egg | .... | .... | | 2.10 | |

Williamson-Franklin rate to St. Louis is $1.07½; other rates $0.92½.

## I. C. C. Decisions

**No. 9005—Rapson Coal Mining Co. vs. Colorado & Southern Railway Co. et al. Submitted Nov. 25, 1918. Decided Jan. 27, 1919.**

1. Rates on bituminous nut coal, in carloads, from Rapson, Colo., to certain destinations in Oklahoma and Kansas found to have been and to be unreasonable. Reasonable maximum rate prescribed and reparation awarded.

2. Record does not warrant establishment of joint rate over route of movement.

**No. 9006—Cabin Creek Consolidated Coal Co. et al. vs. Cincinnati, Hamilton & Dayton Railway Co. et al. Submitted Oct. 5, 1918. Decided Feb. 13, 1919.**

Defendants' demurrage rules applicable in 1915 and 1916 on shipments of lake cargo coal held at ports on Lake Erie, awaiting transshipment by water, not shown to have been unreasonable or unduly prejudicial. Complaint dismissed.

**No. 9667. Ohio Valley Coal Operators' Association vs. Louisville & Nashville Railroad Co., et al. Submitted Jan. 13, 1919. Decided Feb. 13, 1919.**

Upon complaint attacking as unreasonable and unduly prejudicial the rates on bituminous coal in carloads from mines in western Kentucky on the Louisville & Nashville R.R. and Illinois Central R.R. to points in Ohio, Indiana and Michigan, and seeking the establishment of joint rates to the territory north of the Ohio River, Held; That the rates from mines in western Kentucky on the Louisville & Nashville R.R. to Cincinnati, Ohio, are and for the future will be unduly prejudicial to the extent they exceed or may exceed the rates from mines on the Louisville & Nashville R.R. in the Jellico-Middlesboro group in eastern Kentucky and Tennessee by more than 15c. per net ton; and that otherwise the prices complained of are not shown to violate the act.

## General Statistics

### ANTHRACITE PRICES SLOWEST TO RISE

Anthracite continues to hold the position of having shown the smallest increase in price, during the war period, of 51 commodities in general use. This is the finding of the Bureau of Labor Statistics, United States Department of Labor, set forth in the December issue of the *Monthly Labor Review*, Vol. 7, No. 6, pages 111-113. The 51 commodities include foodstuffs, textiles, leather and mineral and metal products.

According to the Government figures, which are based on wholesale prices carried up to Nov. 1, 1918, Pennsylvania anthracite has advanced only 31.80 per cent. over the price quoted in 1913, which in every case is taken as a base. Many other products doubled or even trebled. Taking the 1913 quotations as 100, prices of various staple commodities as given by this Government publication are:

| | | | |
|---|---|---|---|
| Anthracite | 131.80 | Creamery butter | 178.70 |
| Gasoline | 145.80 | Granulated sugar | 204.70 |
| Copper wire | 173.70 | Milk | 234.00 |
| Furnace coke | 236.40 | Fresh eggs | 219.90 |
| Cotton, middling | 253.90 | Bacon | 225.20 |
| Bleached muslin, Lonsdale | 304.90 | Lard | 241.80 |
| | | Fresh beef | 188.50 |
| Women's shoes | 223.30 | Scoured wool | 305.10 |
| Flour | 222.70 | Rye flour | 264.40 |
| Corn meal | 210.80 | Oak sole leather | 171.50 |
| Potatoes | 161.70 | Wool storm serge | 291.70 |

In actual figures, some of the changes are: Anthracite, nut size, which was sold wholesale in 1913 for $5.318, is now given as $7 per gross ton. Gasoline, worth 16.80c. in 1913, is reported as 24.50c. Good standarde patent wheat flour, sold at $4.584 a barrel in 1913, was replaced by standard war flour at $10.210 a barrel. Granulated sugar worth 4.30c. a pound in 1913 is now held at 8.80c., and women's shoes, wholesaling at $2.175 just a little more than five years ago, are now quoted at $4.850 a pair. In the same way fresh eggs leaped from 22.60c. to 49.70c., creamery butter from 31c. to 55.40c., and fresh beef from 13c. to 24.50c. Storm serge worth 56.30c. a yard in 1913 is now quoted at $1.642.

### HAMPTON ROADS TONNAGE IN JANUARY

| | |
|---|---|
| Norfolk & Western Ry | 491,344 Tons |
| Virginian Ry. | 305,996 Tons |
| Chesapeake & Ohio | 272,152 Tons |
| Total | 1,069,492 Tons |

### BALTIMORE & OHIO COAL TONNAGE IN FEBRUARY

The following is a statement of the coal and coke tonnage moved over the Baltimore & Ohio system and affiliated lines during the month of February, 1919, as compared with the corresponding month of the previous year:

| | Tons, 1919 | Tons, 1918 |
|---|---|---|
| Coal | 2,293,179 | 3,225,974 |
| Coke | 125,210 | 225,258 |
| Total | 2,418,389 | 3,451,232 |

### NORFOLK & WESTERN TONNAGE IN FEBRUARY

Below is given a statement of the coal tonnage from mines on the Norfolk & Western R.R. and from other railroads, for the month of February, 1919:

| From: | Net Tons |
|---|---|
| Pocahontas field | 1,085,829 |
| Tug River field | 200,124 |
| Thacker field | 146,105 |
| Kenova field | 52,444 |
| Clinch Valley field | 71,037 |
| Other Northern and Western fields | 3,410 |
| Total Northern and Western fields | 1,558,949 |
| Williamson & Pond Creek R.R. | 94,929 |
| Tug River & Kentucky R.R. | 51,535 |
| All other railroads | 63,160 |
| Grand total | 1,768,573 |

## Coal and Coke Securities

New York Stock Exchange Closing Quotations Mar. 31, 1919

| STOCKS | Ticker Abvn. | Bid | Asked |
|---|---|---|---|
| American Coal Co. of Allegheny | (ACL) | 45 | .... |
| Burns Brothers, Com | (BB) | 139 | 141 |
| Burns Brothers, Pfd | (BB) | 110 | 115 |
| Central Coal & Coke, Com | (CK) | 55 | .... |
| Central Coal & Coke, Pfd | (CK) | 63 | .... |
| Colorado Fuel & Iron, Com | (CF) | 40 | 42 |
| Colorado Fuel & Iron, Pfd | (CF) | 105 | 110 |
| Consolidation Coal of Maryland | (CGM) | 75 | .... |
| Elk Horn Coal, Com | (EH) | 26 | 28 |
| Elk Horn Coal, Pfd | (EH) | .... | 47 |
| Island Creek Coal, Com | (ICR) | 39 | .... |
| Island Creek Coal, pfd | (ICR) | 75 | .... |
| Jefferson & Clearfield Coal & Iron, Pfd | (JF) | 60 | .... |
| New Central Coal of West Va | (NCC) | 5 | .... |
| Pittsburgh Coal, Com | (PC) | 48¼ | 49 |
| Pittsburgh Coal, Pfd | (PC) | 86 | 87 |
| Pond Creek Coal | (PD) | 12¾ | 14 |
| Viginia Iron, Coal & Coke | (VK) | 54 | 59 |

* Ex. Div.

| BONDS | Bid | Asked |
|---|---|---|
| Cahaba Coal, 1st Gtd., 6s, 1922 | 90 | .... |
| Clearfield Bituminous Coal, 1st 4s, Ser. A., 1940 | 71 | .... |
| Colorado Fuel & Iron, Gen. 5s, 1943 | 89½ | 90 |
| Colorado Indus. 1st Mtg. & Col. Tr. 5s, 1934 | 74½ | 75½ |
| Consolidation Coal of Maryland, 1st Ref. 5s, 1950 | 88 | 91 |
| Grand River Coal & Coke, 1st 6s, 1919 | 80 | .... |
| Jefferson & Clearfield Coal & Iron, 2d Mtg. 5s, 1926 | 96 | .... |
| Lehigh Valley Coal, 1st Gtd. 5s, 1933 | 98½ | .... |
| Lehigh Valley Coal, Gtd. Int. Red. to 4%, 1933 | 79½ | .... |
| Lehigh Val. Coal & Nav. Con. S. F., 4½s, Ser. A, 1954 | 90 | .... |
| Pleasant Valley Coal, 1st S. F. 5s, 1928 | 80½ | .... |
| Pocahontas Coal & Coke, Joint 4s, 1941 | 83½ | 84½ |
| Pocahontas Con. Collieries, 1st S. F. 5s, 1957 | 87½ | 88 |
| Roch. & Pitts. Coal & Ir., Helvetia Pur. Money 5s, 1946 | 98 | .... |
| St. L., Rocky Mnt. & Pac. Stamped 5s, 1955 | .... | 82½ |
| Tenn. Coal, Iron & R.R., Gen. 5s, 1951 | 92 | 93 |
| Utah Fuel, 1st Sinking Fund, 5s, 1931 | 87 | .... |
| Victor Fuel, 1st Mtg. Sinking Fund 5s, 1953 | 55 | 70 |
| Virginia Iron, Coal & Coke 1st 5s, 1949 | 85½ | 86 |